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NOTES
ON THE
THERAPEUTICS
OF
INDIGENOUS VEGETABLE DRUGS

BY
L. E. DHARGALKER, I.M.S.

FIRST EDITION.

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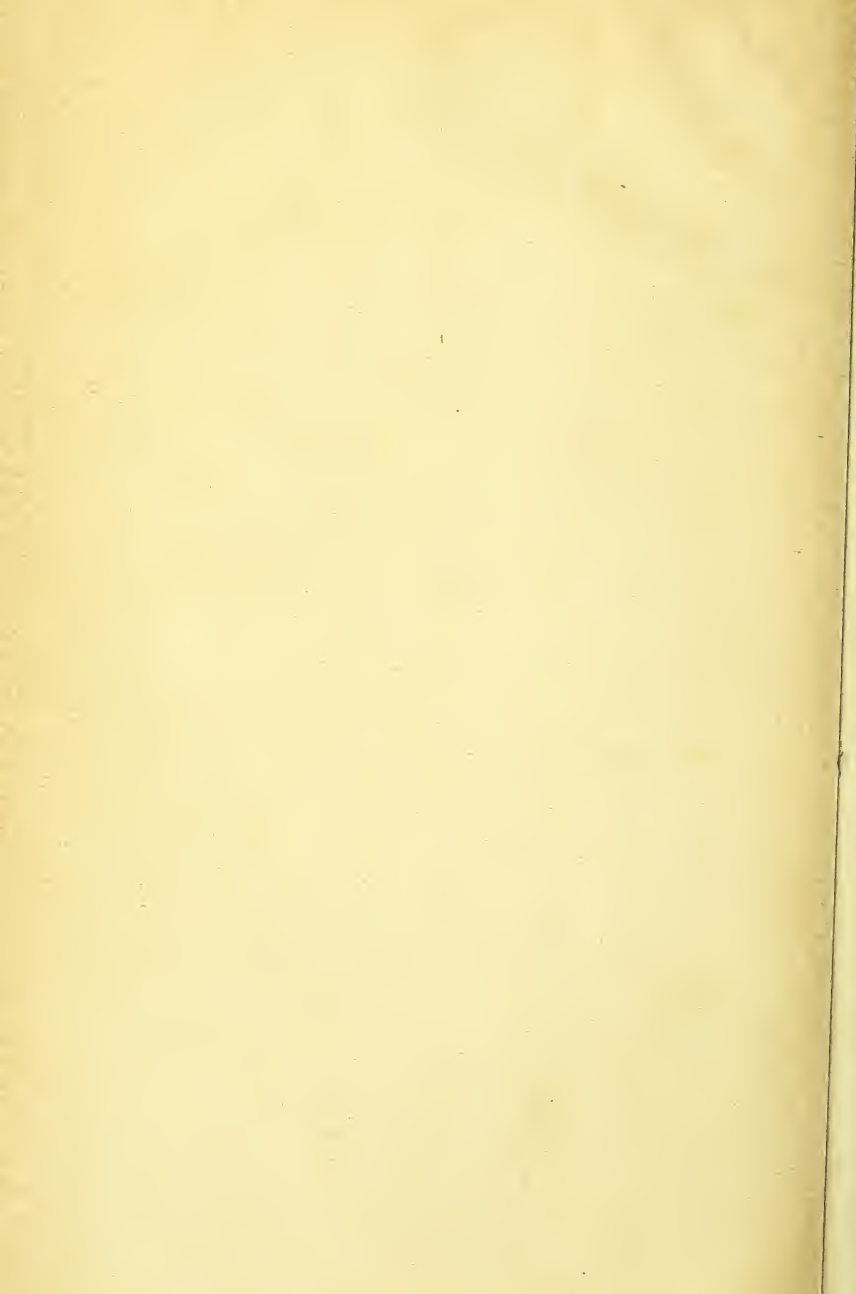
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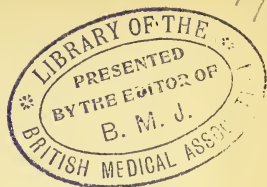
LAKSHMAN B. DHARGALKER, L. M. & S.

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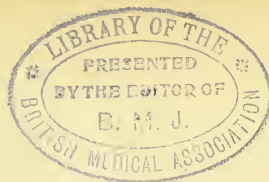
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P R E F A C E .

The primitive man, for his own subsistence, has, by countless experiments, arrived at the discernment of the edible and nutritious from the poisonous and harmful among the roots, leaves, flowers, fruits, seeds &c. of the vegetable world ; and with the acquisition of this important information he must necessarily have gained knowledge of medical properties of some of them ; for example, he could not have failed to notice the purgative and emetic properties of some of them, also the narcotic, stimulant and pungent properties of others. This knowledge made him attempt to relieve the pain and sufferings of other people, at any rate of those he had a natural affection for ; and in a few instances he did attain good results. But before he could generally apply his knowledge with success, an insight into the circumstances affecting the functions of life must be presupposed ; and the man who professes to cure disease is presumed to have ascertained the cause of the ailment and to be able to indicate the agents by which that cause could be overcome. In other words, he must have mastered the ætiology of the diseases and armed himself with a knowledge of the therapeutics of drugs.

India was at one time the home of learning and enlightenment as compared with other countries. The *rishis* who then held the key of the healing art collected drugs from different parts of the wilderness and put them to test partly by their keen observation and partly with the help of their lively imagination. These learned men taught a system of Medicine to their *chelas* or those who had apprenticed themselves to them for the study of the healing art. Like the Hindu professors of other branches of knowledge, religion and art, medical practitioners had also, in conformity with the an-

cient custom of the country, to teach their pupils *gratis*, supplying them at the same time free board and home by incorporating them temporarily with their own families. These teachers have compiled commentaries on the standard authors, embodying therein the results of their own experience. Sometimes medical practitioners and teachers of great ambition addressed the whole profession and wrote excellent works on medicine. In this way the medical literature of the ancient and mediæval India increased. Of all those works, however, the only ancient work that is still largely studied by the medical profession is the *Charaka Samhita*, while the latest authority on indigenous medicine is *Sharangdhara*. After this last there has been no treatise in India worth noticing.

Although the Mahomedans invaded the country and ruled it for a good number of years no important improvement took place in the medical literature of the country ; *Charaka*, *Sushruta*, *Wágabhata* and *Shárangdhara* have therefore remained as the standard authorities on medicine for the whole ancient period. Not only that, but Professor Wilson is of opinion that the Arabians of the eighth century studied the Hindu works on medicine before the Greeks and that, *Charaka*, *Sushruta* and the treatise called *Mádhava Niddán* were translated and studied by the Arabians in the days of *Harun* and *Mansur*. These works contain a very large number of drugs and their therapentic uses noted more or less in accordance with the impressions, their internal use made on the observing faculty of those primitive experimentors or on their lively imagination. But the effects of phenomena known as physical symptoms on the internal structures of the body or on the known functions of special organs of life and motion were not carefully observed ; hence the properties attributed to drugs or substances believed to produce certain effects on specific vital functions or on the whole system have not been sufficiently

verified and cannot, as regards their operation on vital processes, either local or remote, be said to have been stated with such scientific precision as has been reached in present times.

About this time lived in the Kashmir territory a learned man, named, *Narhari Pandit* son of *Chandeshwar*, who compiled the *Rājñighantu* an encyclopædia, containing a short description of plants, their different species, their habitat, the properties of bulbs, roots, flowers, fruits &c.; indicating the operation of the seasonal changes and containing also certain forms of preparations for internal administration. There is no treatise in Sanscrit which contains a clearer description of the vegetable world than the *Rājñighantu* and no more attempts appear to have been made by medical men in India after 775 A.C. to improve or add to the existing store of medical knowledge.

The aggression of the Mahomedans on India has practically closed the era of Sanscrit literature. The Mahomedans brought with them their medical men who practised medicine according to the *Yunani* or Grecian system. These physicians studied the Ayurvedic system and shed considerable light on the uses and properties of Indian drugs. Besides this they imported from their native country many new drugs which were not known to the Indian physicians of that time and thus made a large addition to the existing voluminous list.

The latest work on the subject in the Persian language is the *Makhzunal-Advia*, a treatise on indigenous drugs written by Mirza Mahomad Husain about a century ago and containing descriptions of over 1600 drugs from the mineral, vegetable and animal kingdoms. Although this is a large compendium yet the descriptions of drugs or plants given therein are so meagre that it is not possible to identify drugs from them. But the author did a meritorious service to the medical science of that time by describing the various uses of each drug in a number of diseases and also their medicinal prepara-

tions and doses. The author also gives the synonymous names of the drugs in other languages such as the Greek, Hindi, Persian and, at times, the Latin. The therapeutic action is described as hot or cold in the first or second degree; or whether the drug is a diuretic or a purgative, a stimulant or a tonic &c. This work has been acknowledged as the standard work on *Materia Medica* by the Hakims and no subsequent attempt has been made by this class of medical practitioners to point out and correct certain misnomers or to add or verify the action of drugs known for a century and half ago.

We are to thank the British *Raj* for establishing schools and colleges in this country to impart Western knowledge which has now far exceeded the knowledge which the Hindus developed a thousand years ago. It is only in the benign reign of our most gracious Queen-Empress that we have been receiving real scientific training in the treatment of diseases and in other branches of the medical science. Great progress has of late years been made in experimental physiology and chemistry. The former has added to our store of the knowledge of the functions of the nervous system and has demonstrated that the various organs, including the blood vessels are under the control of the nerves. The success of experimental physiologists led to the formation of a school of experimental pharmacologists, who are now able to show by experiments that many drugs can excite or control nerve action and organic functions. The knowledge of chemistry has advanced so far that we may expect to ascertain the active principles of many indigenous drugs, the doses in which they can be used with safety and the results they are likely to produce, after their administration, on the human system.

The establishment of the British supremacy in India led to the gradual development of Indian pharmacology and Sir William Jones, John Fleming, Ainslie, Roxburgh and other ardent workers in botany and pharmacy did much towards reducing

the chaos in which they found the vast mass of the vegetable world at their disposal to some degree of scientific arrangement. But it was in the year 1844, A. C. that the medicinal uses and the therapeutical values of indigenous drugs were systematically arranged; and O'Shangnessy's Bengal Pharmacopœia was published by the order of the Government. Since then the continuous progress of the medical science, the rapid advance it had made in the therapeutics of indigenous drugs, and the fact of the information relating to the latter being scattered through several periodicals, which were not easily accessible to every one, made it necessary to compile a new Pharmacopœia of India; and about the year 1868 A. C., Her Majesty's Secretary of State for India was pleased to sanction the publication of a Pharmacopœia of India based upon the British Pharmacopœia with the view of bringing to the notice of the profession in India those indigenous drugs which European experience had proved to possess useful medicinal properties and which may be employed as efficient substitutes for drugs imported from England. Later on Honorary Surgeon Khan Bahadur Moidin Sheriff of Madras added to this useful work his experience of indigenous drugs in a separate volume named, Supplement to the Pharmacopœia of India. Thus the marked interest manifested by medical men in government service has been the cause of the steady progress of Indian pharmacology and of its increasing usefulness in the gradual development of commerce, medicine and science of this country. But of recent years the most valuable service rendered to this branch of medical science on this side of India has been by W. Dymock. Among the most recent works on this subject the most useful are (1) the voluminous Pharmacographica Indica, the outcome of the combined and persistent labours of three giant workers of the three presidencies of India, namely, Brigade Surgeon W. Dymock of Bombay, Surgeon Lieut. Colonel C. J. H. Warden of Calcutta and

Mr. David Hooper, Quinologist to the Government of Madras; (2) the comprehensive Dictionary of the Economic Products of India by Dr. George Watt, C. I. E., and (3) the Indigenous Drugs of India by Rai Bahadur Kanny Lall Dey, F. C. S., C. I. E. These books contain the whole literature and information on the subject of indigenous drugs, collected up to date.

While studying these volumes and experimenting with the drugs in my private practice, I have found that the instructions given in old Sanscrit works as to the gathering of herbs, (for example that the annual plants are to be collected before the ripening of the seed, biennial in the spring, perennials in the autumn; twigs to be collected of the new growth; the roots to be gathered in the cold season; the leaves in the hot season and the bark of wood in the rains,) were very useful. I have by experience found that the tincture of the root-bark of *Moringa Pterygosperma* prepared from the roots collected in the cold season gave better results than the one prepared from the same roots collected in the hot season and I think this is one of the reasons why one drug does not give its good results in all hands equally. It is therefore necessary that some reliable preparations from drugs collected in proper season be made in the Government Medical stores for the use of hospital and other physicians, so that the experiment with indigenous drugs may be carried out under conditions which will ensure its success. Another difficulty I have found in the use of our country drugs is the procuring of the reliable drug from the native druggists. The Bombay druggists and herbalists are so sophistic that they will give any thing in place of the drug asked for and one can collect half a dozen different things from different shops for one native name, and therefore the identification of drugs is of the first concern to the medical man intending to experiment with indigenous drugs. This difficulty cannot be overcome until the business of selling native drugs is

taken up by better trained and more conscientious persons, or certain characteristics of each drug become established and reliable specimens of almost all native drugs are handled by students in the medical schools and colleges of India.

In writing the following pages I have classified the indigenous vegetable drugs procurable in Bombay and used by Hakims and Vaidas of Bombay, according to their therapeutical value. I find no attempt made in this direction since the publication of the Pharmacopœia of India in 1868, although much investigation has been made, during the last thirty years in the pharmacology of Indian drugs and there have been many additions to the stock of available knowledge I have here tried to give a short description of the drugs used, or the diagnostic characters of the plants to which they belong together with their popular vernacular names and therapeutic uses and the opinions of several medical men who have tried the drugs in their practice. The recent chemical and physiological investigations regarding some drugs have also been added with the object of facilitating the study of the subject for medical men intending to make further experiments with country drugs with a view to verify or add to the already existing knowledge of these drugs. The subject is undoubtedly very large and the literature thereon extensive ; I have however attempted in the following pages to place the subject before my reader in as concise a form as possible.

NOTES ON THE THERAPEUTICS

OF

INDIGENOUS VEGETABLE DRUGS.

BITTER STOMACHICS AND TONICS.

N. O. RANUNCULACEÆ.

Aconitum heterophyllum, *Wall. (Ver.) Atis.*

The dried root is ovoid, tapering to a point, $\frac{1}{2}$ – 2 inches long and about $\frac{1}{4}$ inch thick. Externally it is whitish, greyish, wrinkled, marked with the scars of fallen rootlets ; internally white.

The root is bitter and possesses tonic properties. It may be safely administered in pretty large doses as it does not contain *aconitia*. Hon. Surgeon Moidin Sheriff states that it is antiperiodic and antipyretic, while other observers think that it is not equal to Cinchona preparations, but only useful in mild intermittent fevers. I have seen it administered in 15-30 grain doses in fevers but I cannot value it as a good antiperiodic.

Dose—10 to 20 grains as a tonic ; 15 to 60 grains as an antiperiodic.

Thalictrum foliosum, *D.C. (Ver.) Pilijari, Piarangâ.*

The root of this herb occurs in pieces about the thickness of a crows-quill. It is fibrous, fasciculated, dark brown externally and yellow internally. It contains the alkaloid *Berberine*.

It combines tonic and aperient properties and has been found useful in convalescence after acute diseases, in mild forms of intermittent fevers and in atonic dyspepsia. (Pharm. Ind.).

Dose—5 grains of the powdered root.

N. O. MENISPERMACEÆ.

Cissampelos Pariera, *Linn. (Ver.) Pahadvel, nirbisi.*

The dried root of this lofty climber, occurs in the form of cylindrical, oval or compressed pieces, $\frac{1}{2}$ -4 inches in diameter. Bark greyish brown, wrinkled longitudinally and crossed transversely by annular elevations; taste sweetish at first, then intensely bitter.

The root and bark are mild tonic and diuretic, exercising apparently an astringent and sedative action on the mucous membrane of the genito-urinary organs. The root was formerly prescribed in acute and chronic cystitis.

Coscinum fenestratum, *Colebr. (Ver.) Jhadihalad.*

The root of this climber resembles Calumba and is sold either for Calumba or Berbery. The wood yields a yellow dye resembling turmeric.

The root is a bitter stomachic tonic and is useful in dyspepsia. Mr. J. G. Ashworth states that this drug has been in use for some years in the Madras hospital and has been found to be a good substitute for Calumba. Dr. D. R. Thomson states that it is used in diabetis. Dr. Rotton states that it is also used in cases of suppression of lochia.

N. O. MALVACEÆ.

Sida carpinifolia, *Linn. (Ver.) Chiknâ, tupkaria.*

A perennial undershrub, leaves narrow, lanceolate, acute, glabrous, serrate; pedicels axillary, not longer than the stipules; carpels 5-8.

Sida cordifolia, *Linn. (Ver.) Balâ, chiknâ.*

Shrubby, leaves cordate, tomentose, bluntly serrate; carpels 9-20 with two setaceous beaks as long as the carpels.

The roots of both these plants are considered tonic and cooling and are used in chronic neuralgic pains, paralysis and urinary diseases. Moidin Sheriff states that they have diaphoretic, antipyretic and tonic properties and are useful in febrile affections.

N. O. SIMARUBÆÆ.

Ailanthus excelsa, *Roxb. (Ver.) Mahârûkh, arduso.*

The bark which is intensely bitter and the roots are used as a tonic in debility after child birth. The bark is prescribed in fevers with other febrifuge drugs. It also acts as an astringent in dysentery, and bloody stools.

Samadera indica *Gært.*

A small tree with large lanceolate simple fleshy leaves; flowers small white in long dense umbels, filaments very long; drupe oval.

The bark, wood and the seed contain a bitter principle *Samaderin*. The wood is regarded as a bitter tonic resembling Quassia.

N. O. MELIACEÆ.

Melia azadirachta, *Linn. (Ver.) Nimb, limb.*

A large tree, leaves compound, imparipinnate leaflets 9-15. oblique, serrate; flowers in panicles, whitish, fragrant; drupe oblong, one seeded.

Almost every part of the plant is used by the natives in medicine. Hon. Surgeon Moidin Sheriff has arranged the physiological action of the different parts of this tree as follows—

The root-bark, bark, and the young fruit, tonic and anti-periodic.

The oil, seed and leaves—local stimulant, insecticide and antiseptic.

The flowers—local stimulant and stomachic.

The gum—demulcent tonic.

The toddy—refrigerent, nutrient and alterative tonic.

The useful properties of the *nim* tree were known to *Sushruta* and other physicians of the old times. The tree is

said to improve the health of the neighbourhood by its presence. It was also supposed that a patient suffering from some chronic disease was cured of his disease if he slept under the shade of the tree for a few months. The leaves are chewed on the *varsha-pratipada* day by credulous Hindus with a belief that they will thereby acquire safety from disease. The leaves are believed to be disinfectant and a bunch of them is tied on the door way and windows whenever an epidemic is prevailing in the neighbourhood. A decoction of the leaves is used as a lotion for wounds and ulcers. A poultice made of the bruised leaves acts as an antiseptic and topical stimulant to ulcers, abscesses, boils, carbuncles and other skin diseases. The late Dr. Anna Moreshwar Kunte used to prescribe Tincture *Azadirachta* as a bitter tonic.

***Soymida febrifuga*, Adr. Juss. (Ver.) Rohan, Rohin.**

The bark of this lofty tree is of rusty colour becoming reddish by exposure to air and moisture. It is known to the natives as an antiperiodic and astringent, but Dr. B. Evers states that the bark is more a bitter tonic than antiperiodic and febrifuge. In an over dose it is said to cause derangement of the nervous system, occasionally vertigo and stupor. Dr. Ainslie states that 4-5 drachms of the bark could be given in 24 hours with safety.

N. O. SAXIFRAGEÆ.

***Saxifragia ligulata*, Wall. (Ver.) Pashanbhed.**

The root of this small plant is used as a tonic in fevers diarrhoea and cough. It is also antiscorbutic and diuretic and is given in gonorrhoea, dysuria and scalding urine.

N. O. CUCURBITACEÆ.

***Bryonia laciniosa* Linn. (Ver.) Shivalingi, kâododi.**

A pretty climber ; leaves 3-4 lobed, petiole long, sometimes warty ; flowers yellowish green ; fruit size of a goose-berry, at first green with white streaks, afterwards pale red,

The whole plant with the fruit possesses bitter tonic properties.

N. O. FICOIDEÆ.

Mollugo strica, *Linn.* (Ver.) *Zaras*.

An annual herb branching from the root, stem decumbent, jointed ; leaves small, elliptic, ovate ; flowers small whitish, cymose ; stamens 3, styles 3 ; capsule round, many seeded.

The whole plant is bitter stomachic and is used as a vegetable by the natives. Dr. Dymock states that it is given to women to promote menstrual discharge but from the fact that it is eaten even by pregnant women, it does not appear to possess emmenagogue properties. Dr. W. D. Stewart states that the bitter leaves are antiperiodic.

N. O. LOGNACEÆ.

Strychnos nuxvomica, *Linn.* (Ver.) *Kājrá, kuchlá*.

A tree, leaves ovate, smooth, shining ; flowers in cymes ; fruit orange coloured pulpy ; seeds flat round, light-grey, silky.

The preparations of nuxvomica seeds are used in European medicine as a nervine tonic and stimulant. Natives value the seed on account of its efficacy in cases of impotency. The poultice of leaves is used as an insecticide to foul ulcers full of maggots. The powdered root-bark made into a pill with lime juice is said to be useful in cholera.

N. O. APOCYNACEÆ.

Alstonia scholaris, *R. Br.* (Ver.) *Sátvin*.

An ever green tree ; leaves 5-7 in a whorl, ovate oblong, whitish beneath ; flowers in cymes, white pubescent, hairy in the throat ; follicles very slender, a foot long.

The bark is dark grey or yellowish externally and light buff internally, $\frac{1}{3}$ - $\frac{1}{2}$ inch thick with a bitter taste.

It is used medicinally as an astringent tonic, anthelmintic, alterative and antiperiodic. It restores the tone of the

stomach in debility or after fever and is useful in chronic diarrhæa.

N. O. GENTIANACEÆ.

Erythræa Roxburghii, *G. Don. (Ver.) Kadvinai, Jangl kirayat.*

A slender annual, stem erect, 4-5 inches high, lowermost leaves ovate, oblong obtuse, upper ones linear-acuminate; flowers of a beautiful pink, starlike.

The whole plant is powerfully bitter and may be substituted for *chirata* when the latter is not available.

Exacum bicolor, *Roxb. (Ver.) Udichirayat.*

An erect herbaceous plant, 1-2 feet high; leaves sessile, ovate, lanceolate; flowers large white, tipped with blue, anthers large, yellow.

The plant possesses stomachic tonic properties and may be used as a substitute for Gentian.

Enicostema littorale, *Blume (Ver.) Chotákirayat.*

A small plant 6-8 inches high, stem 4 sided, much branched, slightly winged; leaves sessile, lanceolate; flowers whitish, in axillary clusters, capsule round.

It is a bitter stomachic tonic, useful in dyspepsia, loss of appetite &c. In Guzerath it is used as a remedy for intermittent fever.

Swertia chirata, *Ham. (Ver.) Kirayat; khambátkâdi.*

The drug sold in the bazar is an entire plant, collected after the capsules are fully formed and dried, tied in bundles. It is much esteemed by the Hindus on account of its stomachic, tonic, febrifuge and anthelmintic properties and is prescribed in fevers of all sorts, in combination with other febrifuge medicines. I generally use its infusion in place of quassia.

N. O. ACANTHACEÆ.

Andrographis paniculata, *Nees. (Ver.) Olenkirayat.*

An erect annual, stem 4 sided ; leaves lanceolate entire ; racemes long, flowers distant, white, spotted with purple or rose colour, bracts linear, capsule subcylindric.

All the parts of the plant are bitter. The root and the leaves are stomachic, tonic, alterative and febrifuge. A committee of the late Drs. Carter, Dymock and Sakhârâm Arjoon reported on the drug as follows :—"a bitter tonic and stomachic. It is used in general debility, in convalescence after fevers and in advanced stages of dysentery. It is also used as a tonic, stimulant and gentle aperient in the treatment of several forms of dyspepsia and in the torpidity of the alimentary canal. The expressed juice of the leaves is a common domestic remedy in the bowel complaints of children. Dose 1-2 ounces of the infusion and 1-2 drachms of the tincture." I have seen the juice of the fresh plant given to children for loss of appetite, irregular bowels &c.

N. O. VERBINACEÆ.

Clerodendron infortunatum, *Gærtn. (Ver.) Bhânt, Bhândir.*

An undershrub 2-3 feet high, branchlets quadrangular ; leaves long-petioled, rounded or ovate-cordate, hairy on both sides ; flowers in terminal panicles, pinkish white ; the calyx increases and turns red after the flower withers ; drupe black, enclosed in the calyx.

The leaves are bitter and considered to be a good substitute for *chirata*, as tonic and antiperiodic. Rai Bahadur Kanny Lall Dey states that "the fresh juice of the leaves is used as a vermifuge and also as a bitter tonic and febrifuge in malarial fevers especially in those of children. The root of this plant in 10-15 grain doses made into a paste with water has been found of great value in hæmorrhoidal disturbance. It readily relieves congestion and torpidity of the bowels and

acts as a slight aperient." Dr. U. C. Dutt states that the decoction of the leaves is a powerful antiperiodic and is a valuable adjunct to arsenic in the treatment of malarial fever.

ANTACIDS.

N. O. LEGUMINOSÆ.

Tamarindus indicus, *Linn. (Ver.) Chinch, Imbli.*

A large tree; leaves paripinnate, leaflets many small; flowers in racemes, pale yellow streaked with red; pod flat, more or less curved, 3-10 seeded.

The shell of the dried fruit is burnt and the ashes used as an antacid along with other similar medicines. Dr. D. R. Thomson states that the ash of the bark is given internally as a digestive.

N. O. AMARANTACEÆ.

Achyranthes aspera, *Linn. (Ver.) Aghâdâ.*

An erect shrub, 3-4, feet high, stem much branched, hairy, branches 4 sided; leaves obovate or rhomboidal, pubescent, pale green; spike long slender, flowers greenish, tinged red; sepals and fruit rough and bristly.

The ash obtained by burning the dried plant yields a large quantity of potash. It acts as an antacid. It is mixed with sesamum oil and dropped in the ear for diseases of the ear which are accompanied by partial deafness.

N. O. SCITAMINEÆ.

Musa sapientum, *Linn. (Ver.) Kel, rânkel.*

Stem short, with annual crop of buds; leaves petioled with very long sheaths, linear, oblong, midrib furrowed; spadix

terminal, drooping ; spathes broad cordate, smooth, of a dark red colour, flowers numerous in each spathe, calyx ligulate ; fruit oblong, pulpy.

The ash produced by burning the plant contains potash salts and is used as antacid in heart-burn, acidity and colic. The dried fruit of other varieties is said to be a valuable antiscorbutic.

N. O. PALMEÆ.

Borassus flabelliformis, *Linn. (Ver.) Tâd.*

A tall palm with cylindrical stem, leaves very large fan-shaped, petiole serrated and spinous on the edges ; spadix large much branched, enclosed completely in a spathe, flowers diceeous, male flowers small, anthers 6 ; female flowers larger than the male, ovary trigonous ; fruit large roundish. It comes in bunches.

The ash produced by burning the dry spadix is used as an antacid in heart-burn.

Cocos nucifera, *Linn. (Ver.) Nârli, mād.*

Stem straight sometimes curved, marked with annual scars of fallen leaves ; leaves pinnate several feet long supported on a thick petiole ; petiole anteriorly concave, margin winged or spinous, sheath fibrous ; spadix erect, spathe woody ; flowers—yellowish-white, male flowers—stamens 6 ; female flowers—ovary ovoid, 3 celled ; fruit very large, ellipsoid, trigonous.

The ash of the leaves contain an amount of potash which is used medicinally. The ash prepared from cocoanut pulp is a valuable antacid and digestive. Assistant Surgeon Anund Chander Mukerji states that preserved cocoanut (*Narikel-khondo*) is used by the *Kabirajas* as an alterative in cases of heart-burn and phthisis pulmonis.

N. O. GRAMINEÆ.

Hordeum vulgare, *Linn. (Ver.) Java.*

An annual grass, producing many stems from a single

grain, 2-3 feet high; leaves simple; flowers in dense cylindrical spikes, spikelet one flowered, in threes at each notch of the rachis; *Caryopsis* ovoid, oblong, furrowed, usually adhering to palea and glume.

The ash of the stem was found to contain by Lerner 20 per cent of silicic acid; 32.6 of phosphoric acid, 22.7 of potash and 3.7 of lime. The natives separate the alkalies by dissolving the ashes in water and boiling the strained liquid to dryness. The residue is termed *Yavakshār* and is used as an antacid in dyspepsia, heart-burn, bronchitis, asthma &c.

ASTRINGENTS.

N. O. NYMPHÆACEÆ.

***Nymphæa lotus*, Linn. (Ver.) Kamal, Neelotpal.**

An aquatic plant; leaves peltate, rotundate, dentate; flowers solitary, large, red or white; petals and anthers in many series.

The flowers are used as an astringent in diarrhœa, &c. and are also recommended as a cardiac tonic. They are also prescribed for bleeding piles and menorrhagia. Mr. Taylor states that in Dacca the flowers and stalks of this species are reduced to powder and administered in cases of discharge of blood from the stomach and bowels.

N. O. PAPAVERACEÆ.

***Papaver somniferum*, Linn. (Ver.) Afu.**

Opium and *khaskhas* seeds are largely used as astringent in native medicine.

N. O. TAMARISCINÆ.

***Tamarix gallica*, Linn. (Ver.) Jhavu. Galls, barimai.**

A small tree leaves scale like, smooth, subulate not sheathing, flowers in slender racemes, pink, small, disk 5 lobed, stamens 5.

The galls are smaller than the oak galls ; three-angled.

The galls and the bark of the twigs are known as astringent and are used in the treatment of diarrhœa and dysentery.

N. O. DIPTEROCARPEÆ.

Shorea robusta, *Gært. (Ver.) Sal.*; Resin, *rål*.

The resinous exudation from the bark of this timber tree varies in colour from pale amber to dark brown. It is devoid of taste and smell and is soluble in ether and turpentine. The bark contains tannic principle and yields on boiling with water an extract similar to catechu.

The resin is considered astringent and is administered in cases of dysentery. The late Dr. Sakharam Arjoon states that he had seen good results follow the administration of *rål* with sugar in the treatment of dysentery. It is prescribed in infantile diarrhœa especially in cases of bloody stools, in 10 grain doses with sugar. It is also used in the preparations of plasters and ointments.

N. O. GUTTIFERÆ.

Mesua ferrea, *Linn. (Ver.) Nâgchâphâ ; Nâgkesar*.

An ever green tree ; leaves oblong lanceolate, coriaceous ; flowers large solitary or twins, petals white, anthers bright yellow ; fruit oval, pointed, with the calyx attached.

The dried flowers are regarded as astringent and stomachic. They are recommended in cases of vomiting and bloody dysentery. The seeds are given with butter and sugarcandy in bleeding piles and with cardamoms and sugarcandy for hoarseness of voice. The fruit is stimulant and alterative, and is prescribed in diseases of the genito-urinary organs as a substitute for cubebs. The oleoresin has demulcent properties.

Garcinia mangostana, *Linn. (Ver.) Mangustan*.

Although this is not an indigenous plant, it is now largely introduced in the Madras Presidency and the fruit which is of

the shape and size of an apple with thick woody, astringent rind, is eaten as a table-fruit. The dried rind has been used long since in native medicine. It contains tannin, resin, and a crystallizable principle *mangustin*. It is an astringent of considerable value. It is used in chronic diarrhœa and dysentery.

Dose—of the powdered rind 5-10 grains.

N. O. MALVACEÆ.

Bombax Malabarica, D.C. (Ver.) Sâvêr ; sâmlô.

A large tree ; trunk and branches covered with stout hard prickles ; leaves digitate, leaflets 5-7 narrow at both ends ; flowers large, bright red, calyx unequally lobed, fleshy ; capsule woody, full of silky cotton when ripe.

The *mochras* an astringent gummy exudation occurs in opaque darkbrown, knotty pieces, containing a large proportion of tannic and gallic acids. It is regarded as astringent and styptic and is used in diarrhœa, dysentery and menorrhagia. Dr. T. Anderson states that the gum is useful in diarrhœa of children.

Dose—20-30 grains with equal parts of sugar.

Eriodendron anfractuosum, D. C. (Ver.) Pândhri Sâvar ; dholo sâmlô.

A tall straight tree, prickly when young, branches horizontal and whirled ; leaves digitate, leaflets 5-8 ; flowers dirty white, small, staminal tube split into 5 parts, each with two anthers ; fruit oblong woody.

The unripe fruit is regarded as astringent and demulcent. Dr. F. H. Thornton states that the root of the young plant is used in the form of decoction in cases of chronic dysentery.

N. O. RUTACEÆ.

Ægle marmelos, Cor. (Ver.) Bel, bil.

A tree with strong axillary spines and a grey rough bark ; leaves trifoliate, palegreen, leaflets smooth, ovate-lanceolate ;

flowers in panicles, greenish-white, small, fragrant; fruit of the size of an orange, smooth, pulpy.

Rai Bahadur Kanny Lall Dey states that it does not lose its astringent property on drying or keeping, although the fresh fruit is the most reliable. This medicinal property is not due to tannin, of which it only contains a small quantity, but partly to pectin and mucilaginous principles contained in the jelly-like mucous surrounding the seeds and to the astringent acids of the unripe fruit.

The unripe fruit is highly extolled in chronic diarrhœa and dysentery. I had prepared a liquid extract from fruits according to the directions given in the British Pharmacopœia and found it to act in chronic diarrhœa and dysentery with very good results. When dysenteric stools are streaked with blood I have found that compound powder of Ipecacuanha administered with the expressed juice of the *Bel* leaves act more efficiently than when given with some other vehicle.

Feronia elephantum. *Cor. (Ver.) Kavith, kothâ.*

A middle sized tree; branches slender, drooping; leaves alternate unequally pinnate, leaflets small, obovate, smooth, common petiole winged; flowers in racemes, small, pale with large dark anthers; fruit size of an orange, woody.

The unripe fruit is considered to be a useful astringent in diarrhœa and dysentery. It contains citric acid.

N. O. MELIACEÆ.

Amoora rohituka, *W. & A. (Ver.) Rohitak, Rohidâ.*

An evergreen tree with large crown of branches, leaves 3 feet long, leaflets 9-15; flowers in spikes, white, calyx tripartite, petals 3, anthers 6, ovary 3-celled; fruit like a ball opening from the apex; seeds red.

The bark is used as an astringent. The oil of the seeds is used as a stimulating application for rheumatism.

Cedrela toona, *Roxb. (Ver.) Tun, Mahānimb.*

A large tree, leaves, very large about the end of the branches, leaflets oblique, long pointed; flowers small, white, fragrant, stamens alternating with the staminodes; capsule oblong, splitting at the apex; seeds winged.

The bark of this tree is a powerful astringent and may be resorted to when remedies of the same class cannot be available. (Pharm. Ind.).

N. O. ANACARDIACEÆ.

Mangifera Indica, *Linn. (Ver.) Āmbā.*

The powder of the dried kernel of the mango is astringent and useful in diarrhœa and dysentery. It contains about 10 percent of tannic acid. Assistant Surgeon A. L. Ghose states that the kernel of the stone has been frequently used in diarrhœa of children with success in 1-3 grain doses, either alone or with dried *Bel*. The late Dr. Sakharam Arjoon says that the dried flowers either in the form of decoction or powder are used as an astringent in looseness of the bowels, chronic dysentery and gleet. The bark of the tree contains tannic acid, and its fluid extract is recommended in hæmorrhages. (K. L. Dey).

Odina wodier, *Roxb. (Ver.) Shimti, Moya.*

A large tree; leaves unequally pinnate, leaflets 3-4 pairs oblong, ovate, acuminate; flowers in terminal racemes, pendulous, very small, purplish; fruit uniform, of the size of a french-bean, red when ripe.

The bark is very astringent and forms an excellent astringent gargle.

N. O. LEGUMINOSÆ.

Butea frondosa, *Roxb. (Ver.) Palas, Khākro.*

A tree; leaves trifoliate, petiole long, leaflets large roundish ovate, flowers in racemes, large orange red, silky; pod flat, thin, downy.

The gum known as *palas gonda* is an excellent astringent and may be used as a substitute for *kino*. Hon. Surgeon Moideen Sheriff states that, the inspissated juice of the plant, the gum, is a good astringent and useful in all complaints in which the true *kino* is indicated. Dr. R. A. Barker states that the leaves are astringent and used by the natives as a poultice to dispel tumorous hæmorrhoids, buboes &c. The gum is very astringent and in 5 grain doses most useful in checking serious diarrhœa. In large doses it is efficacious in hæmorrhage from the stomach.

Pterocarpus Marsupium, Roxb. (Ver.) Biblá.

The gummy exudation obtained by incisions in the trunk of this large tree, inspissated without artificial heat is the gum *kino* of the European Materia-medica. It occurs in small angular, dark brownish red pieces with a very astringent taste. Its principal constituent is the *kino-tannic acid*. The astringent gum is not much used in native medicine.

Sesbania grandiflora, Pers. (Ver.) Agastâ.

A small tree, bark greyish; leaves paripinnate, flowers large white or streaked with red; pod linear about a foot long.

The fresh bark is astringent and contains a red gum resembling Bengal *kino*. An infusion of it is given in smallpox and other eruptive fevers. (K. L. Dey).

Cæsalpinia digyna, Roxb. (Ver.) Vâkeri.

An armed straggling shrub, leaves pinnate leaflets 16-20, darkgreen; flowers in racemes dark orange or yellow, pod oblong, thick, tortuous.

The root is considered to possess astringent properties. It is rubbed into a paste and applied over indolent tumours and abscesses.

Cæsalpinia sappan, Linn. (Ver.) Patang, bokam.

A small thorny tree, leaves pinnate, pinnae 20-40, leaflets

20-30, small ; flowers in terminal panicles ; pod thick woody 3-4 inches long.

Extract of sappan contains a crystalline principle, which if distilled or fused with potash yields *Resorcin*. (Pharmacographia Indica). The decoction of the wood is astringent and is useful in atonic diarrhoea. It is a substitute for logwood (Pharm. Ind.).

Cassia auriculata, Linn. (Ver.) *Tarvid, aval*,

A shrub, leaves pinnate, leaflets 16-24, oval, stipules broad, leafy, auriculate, persistent ; flowers in racemes, large, yellow ; pod thin, 4-5 inches long.

The bark is highly astringent. The decoction of flower buds is an agreeable form in which it is taken in the morning as a drink in diuresis and diabetis. It acts as an astringent tonic. (Watt's Dictionary of Economic Products).

Saraca Indica, Linn. (Ver.) *Ashoka*.

A small tree ; leaves equally pinnate, leaflets 6-12 oblong lanceolate, 6-9 inches long ; flowers in large cymes, orange red, calyx-tube long, red ; stamens long, usually red ; pod broad flat, 4-10 inches long.

The bark is used as an astringent in cases of menorrhagia and internal hæmorrhoids. *Ashoka ghrita* is prescribed with benefit in cases of chronic menorrhagia. The bark contains a large proportion of tannin. The powder of dried flowers is used in diabetis with benefit.

Acacia arabica, Willd ; (Ver.) *Bābhal, Baval*.

A tree with long white thorns ; leaves pinnate, pinnæ 6-12, leaflets 20-40, small ; flowerheads yellow, fragrant ; pod linear, moniliform.

The bark occurs in coarse, fibrous pieces of a deep reddish colour. It is a powerful astringent but is not used internally. It is used as a gargle in relaxed sore throat and spongy gums. I have frequently used the decoction of the bark with catechu

as a gargle in apthous condition of the mouth and in mercurial salivation. Dr. Dayal Chander Shome states that he had frequently used the decoction of the bark as an astringent injection in different forms of leucorrhœa and found it to be more efficacious and less irritating than the alum and zinc injections generally used. Hon. Surgeon Moideen Sheriff states that the powder of the tender legumes is astringent and demulcent and has a beneficial effect in diarrhœa and dysentery. Its influence is much enhanced by the combination of some preparation of opium.

Acacia catechu, Willd (Ver.) Khair, kher.

A middle sized tree, bark dark brown, much cracked, spines short-hooked, in pairs; leaves pinnate, pinnæ 40-80, leaflets 60-100; flowers white or pale yellow, flowerheads spiked, rachis downy; corolla 2-3 times the tomentose calyx; pod straight, strap shaped, narrow, thin dark brown.

The resinous extract, catechu, prepared from the wood is a powerful astringent. It is stated in the Pharmacopœia of India that the extract is of much value in diarrhœa depending on relaxed state of the intestinal mucous membrane. Locally it is used with advantage in pytalism, ulceration and sponginess of the gums, relaxation of the uvula, hypertrophy of the tonsils &c. and in the form of injection in leucorrhœa and atonic dyspepsia. The powdered catechu is a very common local application for soft chancres. A mixture of catechu and myrrh called *kathbol* is usually given to women after delivery as a tonic and to promote secretion of milk. Civil Surgeon C. M. Russell states that it is an astringent and tonic in diarrhœa in combination with aromatics such as cinnamon and nutmeg. Dr. J. Lancaster states that the extract combined with the seeds of *Bonducella* and with sulphate of Iron, is used for strengthening the gums. Dr. W. Barren states that it is supposed to have an analogous action to that possessed by ergot on the womb when prescribed with myrrh.

Dose—5 grs. of powdered catechu as an astringent.

N. O. COMBRATACEÆ.

Terminalia belerica, *Roxb. (Ver.) Behadâ.*

A large tree, leaves large, long petioled, broad ovate, or obovate; flowers in long spikes, yellowish green, giving out offensive smell; fruit nearly round, size of a plum covered with grey silky down.

The ripe dried fruit is astringent and is used in piles and diarrhœa, and as an application to inflamed parts. The unripe fruit is purgative and is one of the constituents of the *triphalâ* which is usually prescribed in almost every disease.

Terminalia Arjuna, *Bedd. (Ver.) Arjoon, Arjun sâdrâ.*

A large tree, bark smooth, leaves linear oblong, cordate at the base; spikes of flowers paniced; fruit ovoid nearly smooth.

The bark contains about 15 percent of tannic and 30 percent of calcium carbonate. It is considered as cooling and astringent tonic and is used in heart diseases, contusions, fractures &c. A decoction of the bark is employed as a wash for ulcers and chancres. (U. C. Dutt).

N. O. MYRTACEÆ.

Eugenia Jambolana, *Linn. (Ver.) Jâmbhal, Jâmu.*

A moderate sized tree; leaves oblong coriaceous; flowers in paniced cymes, white; berry oblong, dark purple; seed solitary.

The bark is astringent and its decoction is used as a gargle in sore-throat and salivation. Dr. Bensley states that the decoction of the bark is used largely for diarrhœa and dysentery in combination with carminatives such as cardamom and cinnamon. The powder of the dried stones of the fruit is given in cases of diabetis. I have administered it in one dram doses and think that it diminishes the quantity of sugar in urine very quickly, but the effect is not permanent. It is believed to check the diastasic conversion of starch into sugar.

Psidium Guyava, Linn. (Ver.) Peru.

A small tree, bark greyish brown ; leaves opposite oblong ; flowers axillary, white ; calyx superior, stamens numerous, fruit round or pear-shaped, many seeded, green or yellowish.

The bark especially that of the root is astringent. Dr. Waitz states that he employed it with much success in chronic infantile diarrhœa. Its decoction is also recommended as a local application in the prolapsus ani of children. The leaves are also astringent but to a less marked extent. Civil Surgeon S. M. Shicore states that the decoction of the root bark is a useful astringent in chronic diarrhœa complicated with dyspepsia.

Decoctum Guyava—Root bark half an ounce, water six ounces, boiled down to three ounces.

Dose—1-2 teaspoonsful, 3 times a day for children.

N. O. MELASTOMACEÆ.**Memecylon edule, Roxb. (Ver.) Anjan ; Lokhandi.**

A small tree ; leaves ovate entire, polished ; flowers in dense heads or umbels, calyx red inside, white outside, petals purple or blue ; fruit globose red or purple, crowned with the 4 toothed limb of the calyx.

The leaves are supposed to be cooling and astringent and are usually administered internally in leucorrhœa and gonorrhœa, but they are chiefly used as a lotion in conjunctivitis.

N. O. LYTHRACEÆ.**Punica granatum, Linn. (Ver.) Dâlimb, Anâr.**

A shrub more or less branched from the root, leaves linear lanceolate about 2 inches long ; flowers monœcious, calyx campanulate or infundibuliform, 5-6 toothed, leathery, of a pale red colour ; petals many, crisped, orange red ; fruit inferior, roundish with a leathery or woody reddish rind.

The rind is a useful astringent in diarrhœa and dysentery. The chief constituent of the rind is tannin. Assistant Surgeon S. C. Bhattacharji states that the rind of the fruit forms a valuable astringent decoction in diarrhœa.

Decoctum granati corticis—Pomegranate rind bruised 2-ounces, water one pint, boil for 15 minutes and strain. *Dose* 1-2-ounces.

Woodfordia floribunda, *Salisb.* (*Ver.*) *Dhayati*, *Dhavada*.

A large shrub ; leaves narrow lanceolate, dotted with black glands beneath ; flowers numerous, red, tubular, stamens red, exserted ; capsule covered by the withered calyx.

The dried flowers are astringent and contain about 20 per cent of tannic acid. I have administered the powder of dried flowers in 15-20 grain doses in intestinal hæmorrhage with advantage.

N. O. SAPOTACEÆ.

Mimusops Elengi, *Linn.* (*Ver.*) *Bakul*, *oval*, *malsuri*.

A large evergreen tree ; leaves elliptic oblong, dark green, shining ; flowers fascicled, white, fragrant, calyx covered with rusty tomentum ; berry of the size of a plum, orange red when ripe.

The bark and fruit are used in medicine by early Sanskrit writers. The bark is considered astringent and its decoction is useful as a gargle in diseases of the gums and teeth. The unripe fruit is recommended by *Chakradatta* as astringent and a useful masticatory for fixing loose teeth. I have used the decoction of the bark with that of *Jambhal* and *Pimpal* as an astringent gargle in ulceration of the fauces. Civil Surgeon B. Gupta states that the pulp of the ripe fruit is sweetish and astringent and has been successfully used in curing chronic dysentery.

Mimusops hexandra, *Roxb. (Ver.) Ranjan, Kerni.*

A small rigid tree, leaves obovate, emarginate shining on both sides ; flowers on axillary pedicels, small white ; berry small, yellow, 1-2- seeded.

The bark is astringent and is used in the same way as the above.

N. O. EBENACEÆ.

Diospyros embryopteris, *Pers. (Ver.) Tendu, temburni.*

A tree, leaves large, broad elliptic, tomentose beneath, peduncles of male flowers as long as the petiole, 3-flowered, flowers white, small; fruit as large as a pigeons egg, yellowish brown.

The fruit and the bark both possess astringent properties. The juice of unripe fruit is rich in tannin and is astringent and styptic. The oil extracted from the seeds is also administered with success in diarrhœa and dysentery. An infusion of the fruit is used as a gargle in aphthæ and sore-throat. The testa of the seed is also astringent.

N. O. STYRACEÆ.

Symplocos racemosa, *Roxb. (Ver.) Lodhra.*

A small tree ; leaves oblong lanceolate, smooth ; flowers in axillary racemes, petals sometimes 8, stamens indefinite ; fruit ovoid, purple when ripe.

The bark of this tree possesses astringent properties. It is administered in combination with other drugs in dysentery and bloody stools. It is also prescribed in menorrhagia due to relaxation of the muscular tissue of the uterus in 20 grain doses, given two or three times a day for four days. Three alkaloids have been isolated from the bark, named respectively *Loturine*, *Colloturine* and *Loturidine* (K. L. Dey).

N. O. OLEACEÆ.

Jasminum grandiflorum, *Linn. (Ver.) Chambeli.*

A large scandant shrub ; leaves imparipinnate, leaflets small lanceolate, flowers reddish white.

The leaves act as an astringent when chewed and are useful in cases of sore gums and stomatitis. The fresh juice of the leaves is said to be a valuable application for corns between the toes. An alkaloid named *Jasminine* has been isolated from the leaves.

APOCYNACEÆ.

Holarrhena antidysenterica. *Wall. (Ver.) Pândharâ Kudâ ; seeds=indrajav.*

A tall shrub ; leaves oblong or ovate, palegreen ; flowers large, in cymes, white ; follicles very slender about a foot long, hairs of seeds brown and silky. The seeds are narrow elongated about half an inch in length and of a brown colour almost straight or a little concave and marked with a longitudinal line on one side.

The bark is a powerful antidysenteric, while the seeds are considered to be astringent, antidysenteric and febrifuge. Dr. W. Forsyth states that the bark is almost a specific in chronic dysentery, even if there be sloughing of the mucous membrane. The seeds are given in acute cases of dysentery whether accompanied or not by fever. Assistant Surgeon Nandalal Ghose states that the decoction in one ounce doses or the fluid extract of the root bark in 20 minim doses has been frequently used in dysentery, hæmorrhage &c. The bark must be fresh. The seeds in doses of 1-2 grains are useful in the diarrhœa of infants.

The indiscriminate use of this drug in every stage of dysentery and diarrhœa has led many practitioners both Europeans and Natives to doubt the efficacy of this medicine.

POLYGONACEÆ.

Polygonum viviparum, *Linn.* Root=*Anjabar*.

Root-stock woody, stem slender, 3-4 inches, leaves variable, long petioled, linear or linear-oblong · spike solitary, erect, slender, flowers pink, bracts ovate acuminate.

The root is a powerful astringent and contains a large quantity of tannic and gallic acids. It is used as an injection in the treatment of gleet and leucorrhœa, and internally in diarrhœa, dysentery, hæmoptysis &c. It is also used as a gargle for sorethroat.

MYRISTICÆÆ.

Myristica fragrans, *Houtt.* (*Ver.*) *Jaiphal*.

The nutmeg is oval, about an inch in length marked externally with reticulated furrows ; internally it is greyish red with dark brownish veins. It yields an essential oil. It is considered as an astringent by the natives and is a domestic remedy for diarrhœa even of children.

EUPHORBIACEÆ.

Euphorbia thymifolia, *Burn.* (*Ver.*) *Náyati*, *dhâkti dudhi hazardaneh*.

A prostrate small annual, all red and hairy leaves ovate, oblique, serrate, dark: flowers very small, in close terminal cymes, white tinged with red.

The dried leaves and seeds are astringent and aromatic and used in diarrhœa and dysentery of children along with butter of milk.

Phyllanthus emblica, *Linn.* (*Ver.*) *Ánvalá*, *Ámlá*.

The dried fruit is an excellent astringent and is useful in cases of diarrhœa, dysentery, hæmoptysis and hæmatemesis. Assistant Surgeon S. C. Bhattacharji states that the infusion of *amlaki* is cooling and astringent, and is a useful adjunct to

other medicines for diarrhœa and dysentery; also found efficacious in hæmaturia. I have found the decoction a useful injection in gonorrhœa.

URTICACEÆ.

Ficus bengalensis, *Linn. (Ver.) Bad, bar.*

A large tree, branches throwing ærial roots, bark of a light ash colour, leaves alternate, ovate, stipules deciduous; fruit in pairs, deep red when ripe, of the size of a large plum.

The young buds and the bark are said to possess astringent properties and are useful in diarrhœa. An infusion of the bark is supposed to be a powerful astringent tonic and is considered to possess specific properties in the treatment of diabetis. Civil Surgeon J. Anderson states that an infusion of the small branches is useful in hæmoptysis. The tender ends of the aerial roots are useful in obstinate vomiting. The milky juice is a good astringent and is applied to cracked heels.

Ficus glomerata, *Roxb. (Ver.) Umbar, gulâr.*

A large tree, trunk usually crooked, bark rough; leaves alternate, oblong or broadly lanceolate, fruit clustered on the trunk or branches, smaller than the fig, red when ripe.

The root and the bark are astringent and are useful in dysentery. The unripe fruit is also astringent and stomachic and is given in menorrhagia and hæmoptysis. The root sap and the fruit are useful in diabetis. The milky sap from the trunk is used as a local application for mumps and other inflammatory glandular enlargements.

SCITAMINEÆ.

Musa sapientum, *Linn. (Ver.) Kel.*

The unripe fruit is considered by the Hindus as cooling and astringent. Hospital Assistant Lal Mahomad states that the unripe fruit dried and powdered is used as an astringent in infantile diarrhœa. Civil Surgeon R. A. Parker states that

a combination of ripe plantain, tamarind and common salt is most efficacious in dysentery. He has used it in many cases both of the acute and chronic forms of the disease and seldom failed to effect a cure. The cooked flowers are used in diabetes (K. L. Dey).

The tender plantain leaf is a nice dressing for blistered surfaces and a useful covering for water dressings.

N. O. PALMEÆ.

Areca catechu, Linn. (*Ver.*) *Phopal*; *Supári*.

The young seed contains a large quantity of gallic and tannic acids, and yields a brown variety of catechu. The ash contains peroxide of iron and phosphate of magnesia.

The nut is astringent and is used as a masticatory by the natives. Dr. G. King states that it is useful in checking pyrosis of pregnancy. The burnt nut reduced to powder and mixed with powdered chalk forms a good tooth powder. It can be used as an astringent for bleeding gums. Dr. Kanny Lal Dey states that the unripe nuts are laxative and carminative.

Calamus Draco, Willd. Gum-resin=*Hiradakhan*.

Although this is not an indigenous plant yet the gum resin is largely used in medicine and is imported from Singapore and Borneo. It forms a coating to the fruit, which are shaken in a sack till it is separated; or are boiled with water. The resin thus obtained is dark red and friable.

Dragon's blood the *hiradakhan* of the bazar is used as an astringent in diarrhoea and dysentery. Externally it is applied to ulcers and soft chancres in the form of a compound powder consisting of *hiradakhan*, *mochras* and *catechu*. The gum is also used as an application for inflammation of the eyes.

N. O. CUPULIFERÆ.

Quercus infectoria, Oliver. Galls = *Majuphal*; *Maiphal*.

Although the tree is not indigenous, the galls are largely

used in native medicine as a most powerful astringent in diarrhœa and passive hæmorrhages. The galls contain about 50-60 per cent of tannic acid and about 3 per cent of gallic acid.

REFRIGERENTS.

N. O. NYMPHÆACEÆ.

Nelumbium speciosum, Willd. (Ver.) *Kamal*; *Posar*.

An aquatic plant; leaves peltate, round, 1-2 feet in diameter, smooth pale beneath, floating, margin crenate; flowers white or rose coloured on a long scape; fruit conical with a flat top containing many edible nuts.

The flowers and the juice of the flower stalk are regarded as refrigerent. A sherbat of the petals is cooling and refrigerent and is prescribed in eruptive fevers. The root is mucilaginous; the flower stalk is used as a vegetable. The large leaves are useful as cooling bed sheets in fevers accompanied by intense heat and burning of the skin.

N. O. ZYGOPHYLLACEÆ.

Fagonia arabica, Linn. (Ver.) *Dhamásá*.

A small, much branched thorny undershrub, all covered with glandular hairs; leaves two, small, oblong with four thorns in a whorl, and one pink flower in each axil; fruit deeply 5-lobed with a sharp point at the top.

The plant is cooling and refrigerent. Its infusion is given in fevers to quench excessive thirst and allay vomiting. It is prescribed in mild types of fevers. A bath prepared by boiling the drug in water, is said to give very cooling sensation and stop itching. It is also used for cooling the mouth in stomatitis.

N. O. RUTACEÆ.

Citrus acida, *Roxb. (Ver.) Limbu ; nimu.*

A subarborescent shrub ; leaves vary from oval to oblong, petiole more or less winged ; flowers often unisexual, small, corolla petals 4, tinged with red, stamens 20-40, style long, thick ; fruit round, oval or oblong, skin thin and smooth.

Lemon juice is much used in native medicine. It is given to check bilious vomiting and is believed to be a powerful refrigerent.

Citrus medica, *Linn. (Ver.) Mahâlung.*

The fruit is large, oval or oblong ; rind thick, rough, more or less tuberculated.

The juice of the fruits is refrigerent and astringent ; the marmalade of the rind is used as an antiscorbutic.

N. O. AMPELIDÆ.

Vitis vinifera, *Linn. (Ver.) Drâksha ; Ahangur.*

A climbing shrub ; leaves roundly cordate, 3-7-angled, tomentose, peduncles destitute of tendrils ; flowers small, in thyrsoid cymes, petals united at the apex, style very short ; berries round or oblong, green or dark purple.

The grapes are regarded as refrigerant and digestive. Hon. Surgeon Moidin Sheriff states that the sherbat of grapes is a very pleasant and cooling drink and proves useful in allaying thirst and relieving many other symptoms in many forms of fevers.

The dried fruit *manukâ* is regarded as laxative, demulcent and expectorant.

N. O. LEGUMINOSÆ.

Cicer arietinum, *Linn. (Ver.) Harbharâ ; Chanâ.*

An annual plant, 1-2 feet high, leaves pinnate, leaflets deeply toothed, flowers axillary, papilionaceous ; pod oblong turgid, 1-2 seeded.

The acid liquid, *chanyâ-chi-khati*, obtained by collecting the dew-drops from the leaves is used as a refrigerent in fevers. It allays thirst and is much used in dyspepsia, indigestion and diarrhœa. Chemically it is found to contain oxalic, acetic, and mallic acids.

Tamarindus indica, *Linn. (Ver.) Chinch; Ambli.*

The pulp of the ripe fruit is of a reddish brown colour and has acid saccharine taste. It contains citric, mallic and tartaric acids.

The fruit is considered by the natives as refrigerent, digestive, carminative and laxative and is recommended in diseases caused by deranged bile such as burning sensation of the skin, costiveness &c. In the pharmacopœia of India it is stated that the pulp is laxative and refrigerent employed in the preparation of refrigerent drinks in febrile and inflammatory affections, in which it gradually proves useful and grateful.

N. O. LYTHRACEÆ.

Punica granatum, *Linn. (Ver.) Dâlimb; Andr.*

The fresh juice of the pulpy seeds is cooling and refrigerent and is given in febrile state to allay thirst.

N. O. CACTEÆ.

Opuntia Dillinii, *Hom. (Ver.) Fanya nivdung.*

A prickly bush with nearly erect, obovate, much compressed almost leaf like joints, covered with prickles; leaves hardly developed, the succulent impervious epidermis performs the function of these organs; flowers stand erect on the upper edge of the joints, sessile, large, of a bright beautiful reddish yellow colour; fruit roundish, bright red.

The fruit contains a highly refrigerent pulp which is eaten by poorer classes in times of scarcity. The hot leaf made

into a pulp is applied to the eyes in ophthalmia and to boils to hasten suppuration. A Syrup of the fruit is useful in chronic bronchitis and whooping cough.

N. O. SANTALACEÆ.

Santalum album, *Linn. (Ver.) Chandan ; Sandal.*

A small tree ; leaves opposite, ovate oblong ; flowers in panicles, small brownish purple ; drupe size of a large pea, blackish.

The wood made into a paste with water is a cooling application and is useful in prickly heat, pruritus, sudamina, headache &c. Sandal wood oil is demulcent and is a well-known remedy in gonorrhœa. It is applied externally in scabies.

N. O. EUPHORBIACEÆ.

Phyllanthus emblica, *Linn. (Ver.) Ānvala ; Amlā.*

The fresh fruit is waxy, roundish, fleshy, acidulous, containing a hard woody angular seed.

The juice of the fresh fruit is considered cooling, refrigerent and laxative. A sherbat or a preserve of the fruit is cooling and antibilious and is given in fevers, to allay thirst for parched mouth, hiccup, vomiting and indigestion.

N. O. PALMEÆ.

Borassus flabelliformis, *Linn. (Ver.) Tād.*

The fresh juice, obtained by tapping the flower stalk, if drunk before fermentation sets in, is milky white and sweet. It is cooling and refrigerent, and very beneficial in chyluria. The *tadgola*—the soft albuminous seed—and the jelly-like fluid contained within it, if eaten fresh, are cooling and refreshing.

Cocos nucifera, *Linn. (Ver.) Nārli ; Mād.*

The water or milk of the unripe fruit is a pleasant, cooling

and refrigerent drink containing albumin and is useful in thirst, fever and urinary disorders. The fresh drawn juice from the flower stalk is refrigerant and diuretic. Civil Surgeon R. L. Dutt states that the milk of the green fruit is a good drink in cholera cases. It succeeds in checking vomiting when other means fail.

N. O. GRAMINEÆ.

Andropogon muricatus, Retz. (Ver.) Vålå.

Root perennial, fibrous ; culm numerous smooth, slightly compressed at the base, 4-6 feet long, narrow, erect ; florets in pairs, awnless ; male flowers pedicelled, hermaphrodite sessile.

The fibrous root is considered cooling, refrigerent and a mild diaphoretic. It is useful in fevers, thirst, irritability of the stomach &c. A paste of the pulverized root is used as a cooling application in fevers.

ALTERATIVES.

N. O. MENISPERMACEÆ.

Tinospora cordifolia, Miers. (Ver.) Gulvel ; Galo.

A large climber; bark light grey; leaves smooth, cordate, petiole long ; flowers in racemes, very small, yellow; drupe very small, bright red.

There is a general belief that *gulvel* growing on *nimb* tree is more efficacious as a medicine than that which climbs up other trees. There is some truth in this belief as the plant would naturally suck up some sap from the plant it climbs upon and so one that grows over *Melia azadirachta* would contain more bitter principle.

The entire plant is regarded as a valuable alterative and

tonic and is used in general debility, fever, dyspepsia, jaundice, and skin and urinary diseases. The plant being useful in the debilitated condition of the system in almost all chronic diseases the native physicians of yore have termed it *amrutā* (nectar). It is largely used in all kinds of fevers especially chronic ones which require to be treated by an alterative tonic for a long time. I have taken its infusion for several days for intermittent fever and have come to the conclusion that it does not possess antiperiodic properties.

Out of the three preparations mentioned in the pharmacopœia of India I think the infusion when prepared from the drug while fresh is more efficacious than the tincture or the extract. The bazar extract known as *Gulveliche-satva* or *galosat* is starchy in its nature and does not contain the bitter principle of the plant.

Infusum Tinospora—Gulvel cut to pieces one ounce, cold water 10 ounces ; macerate in a covered vessel for 2 hours and strain.

Dose.—1-3 ounces, thrice daily.

N. O. FUMARIACEÆ.

Fumaria parvifolia, *Lamk. (Ver.) Pitpâpdâ*.

A small, smooth, branched plant, with angular stem, leaves pinnatifid, segments filiform ; flowers small, racemed, whitish or rosy ; fruit round, smooth.

The plant is much esteemed in Hindu medicine as alterative, diuretic and febrifuge. It is also recommended in scrofulous affections.

N. O. BIXINÆÆ.

Gynocardia odorata, *R. Br. (Ver.) Chaulmogra*.

The oil expressed from the seeds of this evergreen tree has long been known and used in India as a remedy for skin diseases. It acts as an alterative internally and stimulant externally. It has a reputation for curing cases of leprosy but

I think it is only palliative or at least it may be useful only in some fresh cases. I have administered the oil from 5-20 minim doses in one case for nearly five or six years continuously without any marked effect. It produces nausea and vomiting in the beginning but when the patient becomes habituated to take it, he can take it floating on milk with ease. Assistant Surgeon S. D. Bhattâcharji states that it proved efficient in a case of psoriasis where other applications failed.

Hydnocarpus Wightiana, *Bl. (Ver.) Kadu Kavatha*.

A fine tree; leaves long lanceolate, smooth and shining; flowers white in umbels or racemes, calyx and pedicels rusty, petals rounded, fringed with silvery hairs; fruit large woody.

The expressed oil of the seeds is considered to be a good substitute for *Chaulmogra* oil. It acts as an alterative tonic and a local stimulant. It has been recommended for local application in rheumatism, leprosy and other skin diseases. I have prescribed it as an application in leprosy but I do not value it more than a mere emolient.

N. O. BURSERACEÆ.

Balsamodendron Mukul, *Hook.* Gum resin = *gugul*.

This gum is collected in cold season by making incisions in the tree and letting the resin fall on the ground. It occurs in roundish pieces of a dull red colour, moist, and not brittle.

It is considered to be alterative, demulcent, aperient and carminative. Natives consider it a very good alterative and recommend it in rheumatism, neuralgia, and other nervous diseases, scrofula, diseases of the genito-urinary organs, skin diseases &c.; a preparation termed *yogarâj gugul* is highly valued by the Vaidyas as an alterative.

N. O. LEGUMINOSÆ.

Psoralea corylifolia *Linn. (Ver.) Bavachi*.

An erect annual, 3-4 feet high; leaves simple, rarely ternate, irregularly toothed, flowers violet, small, pod small; 1-2 seeded, included; seeds black.

The seeds are considered alterative and are administered with similar other ingredients in skin diseases. They are specially recommended in leucoderma. Dr. Kanny Lall Dey has used the oleoresinous extract diluted with chaalmogra oil with good results. I have used a paste made by rubbing the seeds with cow's urine as an application for leucodermal patches and found that it only acts on the fresh patches while there is little or no change in the old ones.

Uraria lagopoides, *D. C. (Ver.) Pithwan.*

A tall erect undershrub, stem densely cæpitose, slender; petiole $\frac{1}{2}$ –1 inch long, leaflets many, 1-2 inches long, glabrous above, downy beneath; flower-buds denser, bracts ciliated.

The plant is an ingredient of the *dashamula* decoction, a favourite prescription of the *vaidyas*. It is considered alterative and tonic, but is seldom used alone. Dr. W. Dymock states that the medicinal properties attributed to this plant are merely fanciful.

Bauhinia variegata, *Linn. (Ver.) Kânchan, Kachnar.*

A moderate sized tree; leaves alternate 9-11 nerved; pedicels short, flowers white variegated with purple, calyx spathaceous, petals glabrous obovate, clawed, stamens 3-5; pod flat, $\frac{1}{2}$ –1 foot long.

The bark is described as alterative tonic and astringent and is prescribed in scrofula, syphilis and other skin diseases. I have very often used the decoction of the bark as an alterative in syphilis especially after a course of mercury. The root is administered in dyspepsia and flatulence.

N. O. CUCURBITACEÆ.

Benincasa cerifera, *Savi. (Ver.) Koholâ.*

A large climber, softly hairy; leaves cordate at the base, more or less lobed, 4-6 inches wide; flowers monœcious large, yellow, stamens 3, style thick, stigmas 3; fruit subrotund, large 10-15 inches in diameter, covered with a bluish white waxy bloom.

The old Sanskrit writers were not acquainted with its styptic properties, as no mention of its use as such is mentioned in *Rajanighantu* or other works on medicine, although recent writers such as *Shârangdhar* and others describe several preparations of the fruit and describe their uses in wasting diseases.

The fruit is considered to be alterative and styptic and a good antidote for mercurial poisoning. It has a peculiar action on the circulatory system by which it rapidly puts a check to the hæmorrhage from the lungs. It is also considered as tonic, nutritive and diuretic and has been found particularly beneficial in phthisis.

Dr. T. H. Thornton states that the expressed juice of the mature fruit possesses purgative and alterative properties. It is used in cases where the system has been affected by mercury. Civil Surgeon K. D. Ghose states that the preparation *Kushmanda pâk* is very efficacious in phthisis pulmonis and that he has seen people benefited by it.

***Corallocarpus epigeia*, Hook. f. (Ver.) Kadvinai.**

An herbaceous climber, glabrous; leaves succulent, usually 3 lobed, petiole long, thick; flowers monœcious very small, yellow; fruit stalked, beaked, green at the base, red above.

The root is of various thickness and length. It is more or less like a broad turnip in shape, yellowish white and marked with whitish raised circular rings, externally. It is bitter, mucilaginous, and subacid in taste.

The root is valued as an alterative tonic and is useful in syphilitic cases. A bitter yellow non-crystallizable substance allied to *Bryonin* has been found in the root.

N. O. UMBELLIFERÆ.

***Hydrocotyle asiatica*, Linn. (Ver.) *Bramhi*.**

A small herbaceous plant, creeping; leaves reniform,

crenate, 1-2 inches in diameter, petiole long ; flowers in small umbels, dark coloured ; fruit roundish.

The plant was known to Sanskrit writers of remote times as an alterative tonic and useful in diseases of the skin, nervous system and blood. The powder of the leaves is a useful alterative in constitutional syphilitic ulcers and skin diseases. Drs. Lalliot, Cazenove and Bertin extol its virtues in the treatment of chronic and obstinate eczema. Dr. Kanny Lall Dey states that a better external preparation is an ointment prepared with Lanolin containing one drachm of the liquid extract in each ounce. In elephantiasis, enlarged scrotums and affections of the cellular tissue this ointment may be found to check the periodic fevers.

A careful analysis of the plant was made in 1855 by Lépine a pharmacean of Pondicherry, who found that it yielded a body which he called *vellarin* and regarded it as the active principle of the plant. In a recent note on the analysis of the plant, Dr. Clement Daruty remarks that *vellarin* is an inspissated oil of a pale yellowish colour with a bitter and pungent taste and a marked odour of *Hydrocotyle*. It is obtained principally from the roots of the plant. But the leaves have been made officinal in the Pharmacopœia of India which must be a mistake as the active principle is especially found in the root of the plant.

Physiological action.—Dr. Clement Daruty gives the following interesting account of the action of the drug on lepers. “The first effect produced on lepers by the administration of *Hydrocotyle* is a sensation of warmth and tingling of the skin especially that of the extremities, followed after some days by a general increase in the temperature of the body, amounting in some instances to an intolerable itchiness accompanied by cutaneous redness. The capillary circulation is accelerated and the pulse becomes stronger and fuller. After a week's treatment patients' appetite sensibly improves and the functions of the principal viscera are performed more easily. As a result of more prolonged treatment the skin

becomes more supple and uniform, the epidermis gradually peels off in small scales or in severe cases in large scales, perspiration is restored, the excretory functions resume their normal action, the digestion becomes improved and the appetite increases. Administered experimentally in small doses to healthy persons, it produces within a short space of time diuretic effects, then a general stimulation of the circulation and eventually intense itching. In doses of 1-2 grammes of the powder it produces considerable giddiness accompanied by cephalgia which sometimes lasts for a whole month even after the medicine has been discontinued. (Watt's Dictionary of the Economic Products of India). Dr. Shortt speaks very highly of this drug and considers it to possess a powerful action in all leprous affections. It may be useful in the primary anæsthetic stages of the disease but I have not found it of much use in advanced cases of tubercular leprosy. In one case of about 15 years standing I prescribed the powder of the leaves in 15-20 grain doses, continuously for two months without any benefit. Moreover, the patient did not experience the physiological effects described above.

N. O. COMPOSITÆ.

Eclipta alba, *Hassk. (Ver.) Bhangrá ; Máká.*

A small rough erect or prostrate weed ; leaves lanceolate, flowers small, white enclosed in a large involucre.

The *Vaidyas* consider that the plant acts as a tonic and deobstruent in hepatic and splenic diseases and useful in various chronic skin diseases. When taken for sometime it acts as an alterative. Mr. Wood considers that the plant will be of greater service than taraxicum in hepatic derangements.

N. O. APOCYNACEÆ.

Ichinocarpus frutescens, *R. Br. (Ver.) Kantebhovari.*

An extensive climber ; leaves small, elliptic ; flowers in cymes, small white or purplish, covered with red hairs ; follicles slender curved.

The root possesses alterative and tonic properties. This drug is usually administered along with *Hemidesmus indicus* in dyspepsia, skin diseases, syphilis &c. The stalks and leaves are used in the form of decoction in fevers.

Rhazya stricta, Decne. (Ver.) Sehar (Pb).

A small glabrous, sparingly branched shrub ; leaves 3-4 inches long, sessile, yellowish ; flowers in axillary cymes, white ; follicles erect, 2-3 by $\frac{1}{4}$ inch.

The whole plant is used as an alterative and tonic. Mr. J. H. Duthie states that in Afganistan the roots, stem, leaves and flowers are dried and their infusion is used in the treatment of syphilis in all its stages, rheumatism &c.

Calatropis gigantea, R. Br. (Ver.) Ruii ; Ákaro.

A large erect shrub, stem yellowish green, smooth ; leaves obovate, palegreen, downy beneath, strongly nerved ; flowers in umbels, purple, occasionally white, corolla lobes reflexed, stamens cohere round the pistil and the five lobes exterior to the stamens form the corona ; follicles ovoid, 3-4 inches long ; seeds hairy.

The medicinal properties of this plant have been known to the natives of this country from the earliest period and it is held in great esteem by the Hindu physicians in the treatment of constitutional syphilis, syphilitic ulcerations, chronic rheumatism, leprosy and other skin diseases, so much so that the plant is called *vegetable mercury*. Almost all the parts of the plant are useful in medicine, but the root-bark, the milky juice and the fresh flowers are more frequently in demand.

The powdered root-bark is used as an alterative, tonic and diaphoretic. It acts by promoting the secretions and by eliminating the poison from the body. In this wise it produces beneficial effects in some forms of secondary syphilis and in some recent cases of leprosy, enlargement of the abdominal viscera, intestinal worms, cough, ascitis, anasarca &c. The milky juice is regarded as a drastic purgative and a caustic. Consider-

able difference of opinion prevails as to the relative value of the bark and the juice. Hindu physicians prescribe the root bark internally while the milky juice is preferred for the preparation of several compounds.

Pulvis Calatropis is prepared by taking the roots collected from sandy soils in the months of April and May, removing all dirt by washing and drying them in open air in the shade until the milky juice ceases to flow on incisions being made in it. The bark is then to be carefully removed, dried and reduced to powder and preserved in stoppered bottles.

Dose—As an alterative tonic 3 grains gradually increased to 10 grains or more three times a day.

Hemidesmus indicus, *R. Br. (Ver.) Upalsari; Anant mula.*

A small twining plant; leaves from ovate to narrow-linear, often variegated with white; flowers nearly sessile, crowded, purple inside; anthers and stigmas united into a large round knob; follicles slender, straight.

The root occurs in pieces of several feet long, of a yellowish brown colour, cylindrical and tortuous, form $\frac{1}{6}$ — $\frac{1}{3}$ of an inch in diameter, the cortex is divided by annular cracks.

U. C. Dutt states that the roots of *Hemidesmus indicus* and *Ichinocarpus frutescens* are both called *Sariva* in Sanskrit and are described under the name of *Sarivadvaya*. They are used both together since both of them, are considered as tonic, demulcent and alterative and are prescribed in dyspepsia, loss of appetite, syphilis and leucorrhœa. Great difference of opinion exists amongst European practitioners regarding the efficacy of this plant as an alterative but it is generally regarded as an efficient substitute for Sarsaparilla. It is largely used in Bombay by *Vaidyas* as an alterative tonic in chronic rheumatism, constitutional syphilis and other skin diseases.

Infusum Hemidesmi—take one ounce of the bruised root and

boiling water 10 fluid ounces ; infuse in a covered vessel for an hour and strain.

Dose—2-3 ounces, thrice a day.

N. O. BORAGINÆ.

Onosma bracteatum, Wall. (Ver.) *Gāvzaban*.

Considerable confusion exists as to the correct botanical determination of the true *gāvzaban*, as the products of different plants are sold in the bazars under that name. The specimen sent by Moidin Sheriff to Kew Garden was identified as a species of *Echium*. Stewart regarded the leaves of *Onosma echioides* as the *gāvzaban* of the Panjab. The leaves of *Launea pinnatifida* are, I think, used for *gāvzaban* by natives of this part of the presidency, but the one obtained in the bazar is a species of the Borage family.

Native physicians consider *gāvzaban* as an alterative tonic and it is largely prescribed in rheumatism, syphilis and leprosy. It is frequently used in combination with *banafsha* as a decoction in fevers.

N. O. CONVULVULACEÆ.

Argyreia speciosa, Sweet. (Ver.) *Samudra shoka*.

A very large creeper ; leaves large, cordate, acute, silky beneath ; flowers in clusters, large rosy inside, purplish-white outside ; bracts large leafy, white ; berry dry, 4-celled, 4-seeded. The seeds very small, black.

The root is regarded as an alterative and tonic and useful in rheumatism and diseases of the nervous system. In synovitis the powdered root is given with milk. The leaves are used as an emollient poultice for wounds and skin diseases. I have seen the leaves used as a poultice in guinea-worms and the seeds as an aphordisiac. Dr. W. Barren states that the root is given internally to rheumatic patients. The leaf is used externally in chronic eczema and as an emollient poultice.

Dose—5-20 grains.

N. O. SOLANACEÆ.

Solanum nigrum, *Linn. (Ver.) Kámuni; Mako.*

A small herbaceous shrub ; leaves ovate, oblong, narrow at both ends, 1-3 inches long ; flowers cymose, small, white ; fruit a berry about a quarter of an inch in diameter, globose green or black.

The whole plant is used as an alterative and diuretic and is said to be useful in anasarca and heart disease. Assistant Surgeon Makund Lal of Agra states that the whole plant is much used as an article of diet for dropsical patients and those suffering from chronic inflammation of the liver &c. Asst. Surgeon Bhagwandas states that he has used with success a decoction of the plant in jaundice and chronic enlargement of the liver in combination with nitro-hydrochloric acid. It has also been found useful in hepatic dropsy. I have used the juice of the plant both internally and externally in pityriasis and psoriasis with success.

N. O. LILIACEÆ.

Smilax glabra, *Roxb. (Ver.) Chobchini.*

A scandant shrub, root large tuberous ; leaves lanceolate, acuminate, three-nerved ; flowers in umbels ; calyx segments broad, obcordate, anthers large.

The tuberous root of this plant cannot be distinguished from that of *Smilax China*. Hon. Surgeon Moidin Sheriff states that the *chobchini* of the bazar is a cheap and useful drug. It is an alterative and nutrient tonic and as such a pretty good substitute for Cod Liver Oil, Jamaica Sarsaparilla and Iodine. He has used it with satisfaction in some cases of secondary and tertiary syphilis, rheumatism, scrofula and consumption. I have prescribed it in some cases of syphilis as an alterative. *Hakims* consider it a good alterative tonic for the aged.

ANTISPASMODICS, SEDATIVES AND NARCOTICS.

N. O. RANUNCULACEÆ.

Aconitum ferox, Wall. (Ver.) *Bachnag* ; *Bish*.

The root is fusiform, 2-5 inches long and $\frac{1}{2}$ —1 inch broad at the top, compact and horny. The colour of the dry root is blackish-brown externally and whitish brown internally. It yields a comparatively larger quantity of *pseudo-aconitine* or *nepaline* and a smaller quantity of *aconitine* than other species of aconite. The dose therefore is not the same as the European aconite.

The root is narcotic sedative and is found useful in inflammatory fevers, affections of the throat, rheumatism &c. It is also used as an antiperiodic in very minute doses in chronic intermittent fevers. Hon. Surgeon Moidin Sheriff states that the root of this plant is much milder and more certain and uniform in its action. The white and hard variety is the best. Its beneficial influence over diabetes is very remarkable, the immoderate flow of urine beginning to diminish from the very day of its use, with a proportionate decrease in the saccharine matter. Its control over spermatorrhœa and incontinence of urine is equally great.

Dose— $\frac{1}{4}$ — $\frac{3}{4}$ grain, thrice a day.

Natives think the root a most efficacious remedy for fevers, especially when accompanied with nervous symptoms. It is never given singly but in combination with pepper, borax, long pepper and sulphide of mercury. This combination is known as *ânandbhairava*. The liniment of the root is used as an anodyne to relieve pain in rheumatism and neuralgia. Assistant Surgeon Mukund Lal states that a very useful anodyne liniment is prepared by heating an ounce of coarsely powdered aconite root in half a seer of linseed oil.

N. O. PAPAVERACEÆ.

Papaver somniferum, Linn. (Ver.) *Afu-che-jhad*.

Opium is highly valued as an anodyne, sedative and narcotic

by the natives. Its action is fully described in all works on *Materia Medica*.

N. O. *RUTACEÆ*.

***Peganum Harmala*, Linn. (Ver.) *Harmal*; *Isband*.**

A herbaceous plant with thick foliage; leaves multifid, segments linear; flowers solitary, white; capsule round, 3-4-celled; seeds very small, brownish, wedge shaped, arched at the back.

Hon. Surgeon Moidin Sheriff states that the seeds are the most powerful part of the plant and are antispasmodic, hypnotic, anodyne and emmenagogue. He recommends their use in asthma, hicough, hysteria, rheumatism, impaction of calculus in the ureter and of gall-stone in the gall duct, colic, jaundice, dysmenorrhœa and menorrhagia, in all of which they relieve pain and procure sleep. Surg. Lieut. Col. Jayaker states that the infusion of the seeds is administered with benefit in asthma.

The seeds are also disinfectant and are burnt to remove foul smells from sick-room.

N. O. *MELIACEÆ*.

***Melia dubia*, Cav. (Ver.) *Nimbodâ*; *Kadukhajur*.**

The fruit is oblong, of a blackish yellow colour, of the size of a plum, shrivelled, looking almost like a date fruit.

The late Dr. W. Dymock states that the pulp of the fruit has a bitter nauseous taste. It is a favourite remedy amongst the labouring classes for colic. It appears to have hardly any purgative property but is said to relieve the pain efficiently.

N. O. *UMBELLIFERÆ*.

***Ferula alliacea*, Boiss. (Ver.) *Hing*.**

Asafœtida, a gum resin obtained by making incisions in the root of this plant is largely used in India as an antispasmodic and stimulant and is useful in colic, flatulence, hysteria, convulsions and cholera. It is recommended as a vermifuge in

round worms when the presence of these entozoa 'give rise to sympathetic nervous affections. A piece of asafœtida is wrapped up in a piece of cloth and tied round the neck of a child suffering from worms with the intention of preventing an attack of convulsions and other nervous affections.

N. O. RUBIACEÆ.

Gardenia gummifera, Linn. (Ver.) *Dikemāli*.

Dikemāli a gummy resinous exudation from this plant is in the form of irregular masses of a dull olivegreen colour and offensive smell mixed up with impurities. It is used as an antispasmodic and carminative in dyspepsia attended with flatulence. It is also a good anthelmintic and laxative and as such is largely administered to children in 3-10 grain doses. Mixed with aloes it is applied to the abdomen in tympanitis, flatulence &c.

N. O. VALERIANEÆ.

Nardostachys Jatamansi, D. C. (Ver.) *Jatāmānsi*; *Balchar*; *Sumbul*.

The bazar drug consists of the rhizome of a dark grey colour, about the size of a finger with the tufted fibrous remains of radical leaves. It is regarded as stimulant and antispasmodic and is given in hysteria, epilepsy and convulsive affections. It forms an ingredient of many stimulant confections of the *hakims*.

Dose—10-30 grains of the powder.

Valeriana Wallichii, D.C. (Ver.) *Tagar*; *Tagarganthoda*.

The drug consists of the rhizome about 2 inches long and $\frac{1}{2}$ inch thick of a dull brown colour marked with transverse ridges and studded with circular prominent tubercles. It is very hard and tough. It is used medicinally as a stimulant and antispasmodic in hysteria and other nervous affections.

N. O. COMPOSITÆ.

Artemisia vulgaris, *Linn. (Ver.) Surpin; Surband.*

A shrubby tomentose plant; leaves ovate, many lobed, toothed, white tomentose beneath; flowerheads small, in paniced racemes, involucre bracts woolly or glabrate, outer small herbaceous, inner scarious, corolla purplish, glabrous.

The leaves are considered to be antispasmodic, anthelmintic and expectorant. They are recommended for asthma and cough. Dr. R. M. Kalapesi has administered the expressed juice of the leaves in drop doses in several cases of whooping cough with success. Dr. Kanny Lal Dey states that the leaves and flowering tops are administered in the form of an infusion for nervous and spasmodic affections. Dr. S. M. Shircore states that the expressed juice is applied by natives to the head of young children for the prevention of convulsions.

N. O. CAMPANULACÆ.

Lobelia nicotianæfolia, *Heyne. (Ver.) Devnal; Bokenal.*

An erect plant, 4-5 feet high, stem hollow; leaves long, lanceolate; flowers whitish, in terminal racemes; capsule roundish, covered by the calyx.

The chief medicinal value of this plant is in the treatment of asthma, whether the disease is purely spasmodic or associated with pulmonary emphysema, chronic bronchitis or heart disease &c. A fluid drachm of the tincture given every half hour soon relieves bronchial spasm. Whenever dyspeusia is due to inflammatory changes in the bronchial tubes or to the presence of secreted matter in these tubes, rather than to spasm, *lobelia* displays special virtues that entitle it to be preferred before numerous expectorants (Stille and Maisch).

The effects produced by *lobelia* on man have been carefully studied by Barallier of Toulon, who found that after taking an infusion of one grain of the leaves in 400 grains of water, there was burning and rawness of fauces, headache and a sensation of constriction beneath the sternum; the pulse

became weak, slow and intermittent and there was diuresis. Larger doses produced general muscular weakness, vomiting, difficult breathing, cardiac depression, reduction of temperature and dilatation of the pupils. (Bull de Therap LXVI).

SOLANACEÆ.

Hyoscyamus niger, Linn. (Ver.) *Khorâsâni ajwan*.

The seeds of this plant are reniform, locally compressed, of a greyish brown colour, testa finely reticulated.

The leaves are not used in native medicine although they are officinal in the British Pharmacopœia and are used as sedative and anodyne in maniacal excitement, sleeplessness, palpitation &c., but the seeds are largely used by the *hakims* as anodyne in coughs, painful affections of the uterus and insomnia. Externally they are applied to inflamed breasts and testicles in the form of a paste made with wine.

Nicotiana tobacum, Linn. (Ver.) *Tambaku*.

The dried leaf of this plant is largely smoked and chewed by the natives for constipation and troublesome cough. It is antispasmodic and in large doses narcotic. The leaf is used as local application with *shilarus* to relieve pain and swelling in orchitis, but this application is usually followed by vomiting and is not a certain cure for the complaint. The midrib of the leaf, dipped in castor oil, is introduced in the rectum of infants to relieve constipation. An enema of the infusion of tobacco was once administered, by a medical friend, in a case of strangulated hernia as a means of inducing muscular relaxation and thus aiding in its reduction but unfortunately narcotic symptoms set in and the patient died in a few minutes afterwards. The late Dr. W. Dymock states that Dr. Leith of Bombay was in the habit of applying a poultice of tobacco leaf to the spine in tetanus with good results. Its infusion is said to be an efficient antidote for strychnia poisoning.

Datura fastuosa, Linn. (Ver.) *Dhotra*; *Dhatura*.

A shrubby coarse plant; leaves smooth ovate entire or deeply

toothed; flowers funnel-shaped, large dark purple or white; capsule roundish, covered with prickles; seeds reniform, flattened, dark yellow.

In native medicine the plant is recommended to be prescribed with other drugs, especially in spasmodic asthma and chronic cough. The fresh juice of the leaves with lime is applied to mumps and has a marked effect in reducing the tenderness and swelling. The seeds are used as a poison for criminal purposes—for stupifying persons with the view of committing thefts; but an over dose causes death. They are also useful in rheumatism, hydrophobia &c.

Dr. Waring gives the following preparations—tincture, extract, plaster and poultice. He, for some years used tincture of *Dhatūra* seeds in hospital practice in India and found it to produce all the sedative and narcotic effects which could have been expected from opium. Twenty drops were found to be equal to one grain of opium. *Datura* cigarettes are smoked for asthma. Five drops of the expressed juice of leaves with pepper is said to check ague; a preparation of the fruit, sulphate of copper and sulphur is said to be useful in scabies and other skin diseases. Civil Surgeon L. Cameron states that he had used the pulp of the leaves made in water as an application in sweating of the feet with success.

N. O. URTICACEÆ.

***Cannabis sativa*, Linn. (Ver.) *Bhang*; *Ganja*.**

Bhang consists of the digitate leaves of the plant, broken so as to form a coarse powder mixed up with the petioles and achenes. *Ganja* consists of the unfertilized flowering tops of the female plant, compressed flat by treading on them after removal from the plant. It is of brownish green colour and has a peculiar narcotic odour. The narcotic principle is only developed in the unfertilized flowers and entirely disappears after fertilization. *Bhang* does not develop the narcotic property until the fruits are mature.

The leaves are ground to a paste with poppy seeds and sugar and made into a watery solution which is drunk habitually by many for intoxicating purposes. Besides this, the leaves are used medicinally as anodyne, sedative, antispasmodic and diuretic. They are used to produce sleep in cases when opium is inadmissible. They do not induce constipation or headache like opium and are recommended in sleeplessness, tetanus and to relieve pain in dysmenorrhœa. In large doses *bhang* acts as an exhilarant increasing the activity of the brain and producing a better flow of thoughts, later on deep meditation or unnecessary laughter, and at last acting as a depressant. The leaves made into a poultice are used as an external application in orchitis piles &c. Dr. Dayal Chandra states that in cases of chronic colic he found the extract in 1 grain doses with $\frac{1}{4}$ grain of Ipecac, to produce wonderful effects.

N. O. PANDANÆ.

***Pandanus odoratissimus*, Willd. (Ver.) Kevara.**

A large shrub giving out ærial roots from the stem and branches; leaves long, linear, spinous at the margin, closely imbricated in three spiral rows; flowers dioecious, very small, grow on a spadix 3-4 inches long, enclosed within large leaflike yellowish bracts; fruit 6-7 inches in diameter, roundish, made of many conical pieces, the whole appearing almost like a pine-apple.

The oil and the water distilled from the pollen of male flowers are largely used by *hakims* as stimulant and antispasmodic in nervous headaches, flatulence, eructations &c. The fruit well dried and powdered is given in 2-5 grain doses for phthisical cough.

AROMATICS, CARMINATIVES AND STIMULANTS.

N. O. RANUNCULACÆ.

***Nigella sativa*, Linn. (Ver.) Kalenjiri; Kalonji.**

The seeds of this plant are small and triangular, greenish in colour, resembling coarse gunpowder.

The seeds are aromatic and very bitter and are used medicinally as aromatic carminative and stomachic and useful in flatulence, indigestion and colic. They are also regarded as anthelmintic, and diuretic but are largely used as an external application in scabies, ringworm and leucoderma. They are said to be galactagogue and owe this property to *melanthin* an active principle found by Greenish.

N. O. MALVACEÆ.

Hibiscus abelmoschus, *Linn. (Ver.) Mushkadānā.*

The seeds of this herbaceous plant are small reniform of brown colour and have a faint odour of musk due to the peculiar principle they contain.

They are aromatic, carminative and stimulant. Hon. Surgeon Moidin Sheriff states that they are stimulant, stomachic and antispasmodic and are useful in some nervous affections in which musk is indicated. It is best administered in the form of a tincture (2½ ounces of seeds, to one pint of rectified spirit).

Dose—1-2 drachms.

N. O. RUTACEÆ.

Zanthoxylum rhetsa, *D. C. (Ver.) Chirphal; Tisal.*

A tree entirely covered with prickles, leaves pinnate, leaflets 8 pairs or more, oval, unequal sided; flowers in large terminal panicles, very small, yellow, all parts in 4; carpels rough, black, size of a pea. The dry carpels are black, rough and reticulated on the surface, they yield an essential oil.

The carpels are gratefully aromatic and pungent. They are used as a condiment in curries. The bark is aromatic and contains *berberine*.

N. O. LEGUMINOSÆ.

Trigonella fœnum-græcum, *Linn. (Ver.) Methi.*

An erect annual herb, stipules entire, leaves trifoliate, leaflets oval or obovate, flowers pretty 1-2, sessile, axillary; pod long and thin; seeds small, yellow, oblong.

The seeds are considered as carminative and tonic and are useful in flatulence, colic, loss of appetite, rheumatism &c. Made into a gruel with sugar and milk, it is given to women after delivery to increase the flow of milk and in cases of defective subinvolution of the uterus. The leaves are used as a vegetable and the seeds as condiment.

N. O. MYRTACEÆ.

Caryophyllus aromaticus, *Linn. (Ver.) Lavanga.*

Cloves although not indigenous are largely used in native medicine. They are aromatic, carminative and stimulant and form an ingredient of several native preparations. They are useful in dyspepsia, flatulence, heart-burn, colic &c. A paste of cloves made with water is applied to the forehead for cold and headache.

N. O. UMBELLIFERÆ.

Peucedanum graveolens, *Benth. (Ver.) Suvâ; Shepu.*

Stem $\frac{1}{2}$ —2 feet high, slender, glabrous, branched; leaves decom-pound, segments filiform; umbels terminal, bracts none, flowers yellow; fruit about $\frac{1}{8}$ inch long, narrowly winged.

The carminative properties of dill water and dill oil are well-known. They are much used for colic-pains due to indigestion. The young plant is used as a vegetable and is regarded as a galactagogue.

Carum caruii, *Linn. (Ver.) Shaijira.*

Dried caraway fruit is carminative and stimulant and is found useful in flatulence, colic, atonic dyspepsia and spasmodic affections of the bowels. It has been largely used as a condiment.

Carum Roxburghianum, *Benth. (Ver.) Bodiajmod.*

The warted fruit of this herbaceous plant is carminative and useful in dyspepsia, hiccough, and pain in the bladder.

Carum Copticum, *Benth. (Ver.) Owâ; Ajwân.*

The fruit is largely used as a carminative, stimulant and

antispasmodic and administered in flatulence, flatulent colic, diarrhoea, cold, cough &c. Asst. Surgeon S. D. Bhattacharji states that the fruit mixed with blackpepper and salt and taken on empty stomach relieves flatulence and colic and promotes digestion. I have very often used it for slight colicky pains. It is eaten as a stimulant by the *ghati* women after delivery and is an ingredient of the betel-nut masticatory chewed by native females after delivery. The smoke from *ajwan* cigarette is puffed into the nostrils of infants for the cure of coryza, cold &c.

Owyan-che-phul or *ajwan-ka-phul* is the crystallized essential oil distilled from the fruit. It is identical with *thymol*, and is used as a powerful carminative in flatulence and as an antispasmodic in hysterical pains. Of late it has been extolled as a powerful antiseptic. (Watt's Dict. Econ. Prod.).

Cuminum cyminum, *Linn. (Ver.) Jiren ; Safed Zirâ.*

Both the fruit and the oil possess stomachic and carminative properties in half drachm doses in combination with other drugs. It is a reputed galactagogue and is largely used as a curry stuff.

Coriandrum sativum, *Linn. (Ver.) Kothimbir ; Dhand.*

A small annual herbaceous plant, leaves lobed or dissected, segments filiform ; flowers purplish, in compound umbels ; involucre both partial and general, calyx superior ; fruit small roundish, ribbed.

The fruit is carminative, refrigerent and diuretic and is largely used in medicine for dyspepsia, catarrh &c. in combinations with other medicines. Assistant Surgeon S. C. Bhattacharji states that the cold infusion of the seeds is found to be very useful in colic of children. The late Dr. Sakharam Arjun states that the juice of the fresh plant is used as an application to erythema caused by the application of the marking nut. Dr. Thomson states that a strong decoction of the fruit with milk and sugar is given in cases of bleeding piles. The fresh plant and the fruit are largely used as a condi-

ment. The infusion of the fruit is used as an eyewash in catarrhal and purulent conjunctivitis.

N. O. COMPOSITÆ.

Saussurea Lappa, *Clarke. (Ver.) Kushta ; Uplet.*

The dried root of this plant occurs in 2-4 inch pieces of brown colour, brittle and resinous. It has a bitter, pungent and camphoraceous taste and fragrant odour of musk and orris root.

It is regarded as an aromatic stimulant and tonic and is an ingredient of the compound *agnimukha-churna* which is prescribed in dyspepsia, loss of appetite &c.

N. O. MYRSINÆ.

Embelia ribes, *Burm. (Ver.) Vavading ; Baberang.*

The berries of this large climbing shrub are of the size of a pepper corn, of dark chocolate colour with the remains of the calyx and the peduncle. The surface is smooth.

The fruit is regarded as carminative and stomachic and anthelmintic and is prescribed in dyspepsia and flatulent colic. Dose of the powdered fruit one drachm. A few fruits are added to cow's milk intended as food for infants, while boiling, so as to make it digestible.

Myrica nagi, *Thunb. (Ver.) Kâyaphal.*

The bark of this evergreen tree is sold in the bazar in small pieces about half an inch thick and of a dark brown colour ; outer surface is rough.

It is considered aromatic and astringent and useful in catarrh, cough, affections of the throat &c. The powdered bark is occasionally used as a snuff in catarrh with headache. The decoction of the bark is said to be a valuable remedy in asthma, diarrhoea and diuresis. The powdered bark mixed with ginger is used as an external stimulant application in cholera.

N. O. LABIATÆ.

***Mentha arvensis*, Linn. (Ver.) *Pudinâ*.**

The herb and the oil extracted from it are considered carminative, aromatic and stomachic and used as an adjunct to purgatives to prevent griping. A decoction of this plant with andropogon citratus is given in coryza and fever. It is much used in *chatnis*.

N. O. RUBIACEÆ.

***Coffea arabica*, Linn. (Ver.) *Bund*; *Kâfee*.**

The seeds of this plant yield the crystalline principle *caffeine*. They are roasted and ground into powder and then prepared into a stimulant beverage which produces a warming cordial impression on the stomach, quickly followed by a diffused agreeable nervous excitement which extends to the central functions giving rise to increased vigour of imagination and intellect without any subsequent stupor, which usually follows, on the use of most other stimulants. It produces a refreshing feeling and acts as a stimulant to the nervous and muscular systems. I have found it very useful in cases of spasmodic asthma and a very good stimulant and cardiac tonic in plague patients. It also acts as an antisoporific in some cases. Surgeon Lieut. Col. Jayaker states that when taken in large quantities it acts as antisoporific, and is supposed by the Arabs to have an anaphrodisiacal effect. Dr. Guillaume of the French Navy reports that in the early stages of typhoid fever coffee is almost a specific. Two or three tablespoonfuls of strong black coffee every two hours alternating with one or two teaspoonfuls of Claret or Burgandy wine produce most beneficial effect.

N. O. SOLANACEÆ.

***Capsicum frutescens*, Linn. (Ver.) *Mirchi*; *Lâlmirch*.**

Chillies are largely used as a condiment by the natives. Medicinally they are considered stimulant, stomachic and rubefacient. They are generally prescribed in dyspepsia,

cholera and ague in combination with bitters and stimulants. Dr. R. Gray states that a dose of ten grains of finely powdered capsicum seed given with an ounce of hot water, twice or thrice a day, sometimes shows wonderful effect in cases of delirium tremens. Asst. Surgeon Bhagwandas states that an infusion made with four drachms of chillies and a bottle of boiling water has been found useful in severe sore-throat. Externally it acts as rubefacient. I have very often used the green fruit as an application in alopecia of the young.

N. O. PIPERACEÆ.

Piper nigrum, Linn. (*Ver.*) *Miri*; *Kalen miri*; *Kalimirch*.

Black pepper is stimulant and carminative. It is much employed as an aromatic stimulant in cholera, weakness following fevers, vertigo &c. and as a stomachic in dyspepsia and flatulence. It is largely used in the preparation of cholera pills for distribution during epidemic outbreaks. Dr. D. R. Thompson states that a very strong decoction of pepper given in that stage of cholera, in which all vomiting and purging cease and the abdomen becomes tympanitic, affords great relief. Hospital Assistant Chuna Lal states that black pepper in 5-20 grain doses is used in intermittent fever, debility, hæmorrhoids, prolapsus anni and cholera. Externally black pepper powder mixed up with *ghee* is rubbed over the body in urticaria to allay itching.

Piper longum, Linn. (*Ver.*) *Pimpali*; *Pimper*.

Long pepper consists of sun-dried, unripe fruit or a spike of small fruits. It is about an inch in length, cylindrical, of a greenish brown colour and acid pungent taste.

The fruit and the root of this plant are stimulant, carminative and alterative tonic. They are largely used in native medicine. The powder of the fruit is given from 5-10 grain doses for indigestion, flatulent colic, chronic cough, asthma, convulsions, epilepsy, hysteria, cholera &c. It is either given singly with honey or is administered in combination with other drugs.

The root is a more powerful stimulant than the fruit. It is prescribed for pains all over the body, rheumatism, dyspepsia weakness &c.

Piper cubeba, *Gært. (Ver.) Kabâbchini; Kankol.*

The dried unripe fruit of this climbing shrub is usually about the size of a black pepper, globular, wrinkled, supported on a stalk and is of blackish colour. It gives acrid compphoraceous smell and aromatic odour. The powdered fruit is stimulant and is used by the *hakims* for its action on the genito-urinary tract. It is a useful drug in gonorrhœa and scalding-urine. Dr. Thorn states that the fruit is used as an expectorant and is believed to possess the power of producing tension of the vocal cords and of clearing the throat of tenaceous mucus.

Piper betle, *Linn. (Ver.) Nagwel; Nagarwel; Pân.*

A stout climbing plant, leaves large, coriaceous, petioled, broad-ovate, 5-7 nerved; flowers in spikes, fruit $\frac{1}{6}$ - $\frac{1}{4}$ inch, very fleshy often confluent into a cylindrical fleshy red mass.

The leaf is considered as stimulant, aromatic and carminative. It is chewed with betelnut, catechu and lime by all classes of the natives and is said to remove fætor from the mouth. *Vaidyas* use the juice of the leaves as a menstrum for their digestive pills and order cough powders and pills to be taken in the juice. The leaves are oiled and warmed and used as a fomentation in bronchitis and flatulence of children. The stalk of the leaf, smeared with oil is inserted into the rectum of infants in constipation. Dr. J. H. Thornton states that the juice of the leaves is stomachic, carminative and expectorant. The slender roots taken with black pepper are said to produce sterility in women. Assistant Surgeon S. D. Bhattacharji states that he has used the juice of leaves with honey in cough of children with decided benefit.

LAURINEÆ.

Cinnamomum zelanicum, *Breyn. (Ver.) Dalchini; Taj.*

Cinnamon is the fine inner bark of this tree rolled in quills

which are about $\frac{3}{8}$ inch in diameter, containing several smaller quills within, of yellowish brown colour, fragrant odour and warm, sweet aromatic taste.

It is aromatic, carminative and stimulant and is useful in flatulent colic, gastric irritation and diarrhœa. Asst. Surgeon T. N. Ghose states that powdered cinnamon in 2 grain doses is a reputed medicine in dysentery. Made into a paste with water it is applied to the temples in neuralgia and severe head-ache.

N. O. MYRISTICÆ.

Myristica fragrans, *Houtt. (Ver.) Jaiphal*; Mace = *Jaipatri*; *Javantri*.

The nutmeg is the seed. It is oval, $1-1\frac{1}{2}$ inch in length greyish externally and marked with reticulated furrows, greyish brown internally with dark brown veins. It is surrounded by a reddish arillus called the mace.

The nutmeg is regarded as an aromatic, stimulant carminative and in large doses narcotic. It is used in diarrhœa, dysentery, flatulence and colic; dose 10-20 grains; but it is usually employed as a flavouring agent. It yields an essential oil. Its paste made with water is applied to relieve headache from cold, neuralgic pains &c.

N. O. CONIFERÆ.

Pinus longifolia, *Roxb. (Ver.) Sâral*. Oleo-resin = *Gandhabiroza*.

The aromatic wood and the oleoresin are considered by the old Sanscrit writers as stimulant. The oleo-resin which is thick, soft, opaque, greenish-white is used as a stimulant diuretic in gleet, gonorrhœa &c. Hon. Surgeon Moidin Sheriff states that it acts as stimulant both internally and externally. Internally it acts chiefly on the mucous membrane of the genito-urinary organs and is therefore a very good remedy for gonorrhœa. Externally it is used as a stimulant application for foul ulcers, abscesses, buboes &c.

Dose—1-3 drachms in emulsion with mucilage, four times in 24 hours.

N. O. SCITAMINEÆ.

Zingiber Officinale *Rosæ. (Ver.)* *Âle* ; *Âdrak* ; *Suntha*.

Ginger has been used in native medicine from remote times. It is used as a carminative and rubefacient and is recommended in dyspepsia, affections of the head and chest, rheumatism, urticaria &c. It is a domestic remedy for flatulence, colic, cold and cough. A confection made of fresh ginger, long pepper and molasses is given to children for catarrh and cough. Many native medicines are recommended to be administered in the juice of ginger. A piece of fresh ginger wrapped up in a leaf of *ocimum sanctum* is held between the teeth for severe toothache. Powders of dry ginger and *carum copticum* are rubbed over the whole body to check excessive perspiration and in the cold, clammy condition of the skin in cholera. I think it is a good substitute for hot water bottles.

Alpinia galanga, *Willd. (Ver.)* *Khulinjan* ; *Pân-ni-jar*.

A perennial plant, leaves broad, lanceolate, sheathing, 12-24 inch long and 4-6 broad ; flowers in terminal panicles pale-greenish-white, faintly fragrant ; capsule size of a cherry, orange red.

The rhizome is aromatic ; pungent and bitter. It is carminative, stimulant and stomachic and is used like ginger. Dr. Moidin sheriff states that in addition to all diseases in which ginger is indicated it is very useful in some nervous disorders, as neuralgia, functional impotence, nervous debility &c. It is also used in bronchitis and dyspepsia. It is said to decrease the quantity of urine in diabetes. Made into a paste with water or oil it is applied for the cure of acne.

Elettaria cardamomum, *Maton. (Ver.)* *Kâgdi-velchi*.

The seeds are aromatic and carminative and are used with other drugs in atonic dyspepsia flatulence &c. They correct foul breath and are said to digest milk ; generally used as a flavouring agent to confectionaries.

Curcuma longa, *Roxb. (Ver.) Halad.*

The rhizome occurs in oval or cylindrical pieces about two inches long and one broad, marked with annular rings, yellowish externally and orange internally ; tinges the saliva yellow when chewed.

It is carminative and is much used as a condiment. I have very often used a decoction of the fresh rhizome, coriander and cinnamon in catarrhal irritable cough with benefit. A paste made of dried turmeric with ginger is used as an application in headache ; and with alum it is used as an application to sprains and bruises. A rag dipped in turmeric solution is used for wiping off the purulent discharge in ophthalmia. Asst. Surgeon T. N. Ghose states that the smoke produced by sprinkling powdered *halad* over fire will relieve scorpion sting, when the affected part is exposed to the smoke for a few minutes. A paste made of fresh rhizome is applied on the head in vertigo.

Amomum subulatum, *Roxb. (Ver.) Mothi-velchi.*

The great cardamon has a fruit about the size of a nutmeg. The seeds are carminative, aromatic and stomachic. Dr. C. R. G. Parker states that the seeds are very useful in liver affections especially where abscess threatens.

Dose—10 grains.

N. O. AROIDEÆ.

Acorus calamus, *Linn. (Ver.) Vekhand; Vaj.*

The rhizome occurs in flattened pieces of the thickness of the thumb, rather spongy, marked with sheathlike ringed appendages. It has a peculiar strong aromatic odour and bitter acid taste.

The rhizome is carminative, antispasmodic, emetic and insecticide. It is a time honoured domestic remedy for cough, fever and flatulence in children. It is given rubbed with little milk and applied to the chest and abdomen. Dr. Kanny Lall Dey states that it is used in dyspepsia attended with

flatulence, in loss of appetite and constitutional debility. As an antispasmodic I have administered the powdered root in ten grain doses in hysteria with benefit.

Dr. B. Evers reports that he found the decoction of the rhizome very effectual in arresting the flux of blood, especially in the dysentery of children. The decoction was prepared as follows—Bruised rhizome 2 ounces, coriander fruit one drachm, black pepper half a drachm, water one pint, boiled down to 12 ounces and set aside to cool. Dose 1 ounce, thrice a day for an adult and 1-3 drachms for a child 2-3 times a day. This decoction is not only useful in dysentery and diarrhœa but also in the bronchitic affections of children. Hon. Surgeon Moidin Sheriff states that as an emetic it is more nauseant and depressant than Ipecacuanha and it is therefore useful in most of the diseases in which the latter is indicated, including dysentery. It is one of the two vegetable drugs in this country which act effectually as emetic in so small doses as 30 grains. It should not be used in more than 35 grain doses. It is a good remedy in asthma, to relieve which it should first be taken in pretty large or nauseant doses (15-20grs.) and then repeated every 2 or 3 hours in smaller or expectorant doses (10 grs.) till relieved.

***Scindapsus officinalis*, Schott. (Ver.) *Gaja-pimpli*.**

A large climbing plant, stem as thick as the little finger, leaves dark-green, elliptic, ovate, petiole broadly winged ; spathe long, green without, yellow-within, beaked ; berries only few ripening, fleshy.

The dried, sliced fruit is aromatic and carminative and is used as an adjunct to other medicines for asthma, diarrhœa and colic.

N. O. IRIDEÆ.

***Crocus sativus*, Linn. (Ver.) *Jafrân* ; *Keshar*.**

Saffron consists of the dried stigmas and part of the style of this plant. It is used medicinally as mild stimulant and in large doses narcotic and aphordisiac. It is an ingredient of several

native preparations for paralysis, impotence &c. Its solution is rubbed over the chest and back in capillary bronchitis and dyspepsia of children. It is also given with lemon juice in diarrhœa of children.

N. O. LILIACEÆ.

Allium Cepa, *Linn. (Ver.) Kândâ; Piyâza.*

Bulb tunicated ; leaves subdistichous, fistular, shorter than the inflated scape ; flowers in heads, stellate, sepals linear oblong, filaments exserted.

Onion is stimulant, carminative, diuretic and aphordisiac. The crushed bulbs are given to smell in fainting fits and convulsions in children. Juice of the bulbs with that of fresh ginger is given to children in flatulence, colic, and to increase the peristaltic action of the intestines. Asst. Surgeon Nandlal Ghose states that the juice of the bulb in 4-8 drachm doses mixed with about 2 drachms of sugar is a capital remedy for bleeding piles ; one dose a day. Dr. W. Barren states that it is said that the aphordisiac properties of onions are enhanced by preserving them in a well stoppered pot and then permitting the latter to remain in a cowdung yard for a period of four months. One onion treated after this method is said to produce strong aphordisiac effect. Asst. Surgeon Gulam Nabistates that the onion promotes appetite and sexual desire. Eaten raw it acts as a diuretic and emmenagogue. Cooked with vinegar it has been employed with benefit in cases of jaundice, enlargement of the spleen and dyspepsia. Dr. J. North states that a decoction of onion is used in cases of strangury. Dr. Ross states that its decoction is used in cough.

Roasted onion is used as a poultice for boils. Dr. R. Thomson states that upon the cut of a large onion if a little slaked lime is placed and rubbed over the part stung by a scorpion, immediate relief is given. The bulbs with some leaves of the *Melia Azadirachta* are tied at the entrance of houses as a deodorizer and antiseptic during the prevalence of epidemics.

Allium sativa, Linn. (Ver.) Lasun.

Bulbs numerous, enclosed in a common membranous covering. Stem simple about 2ft. in height, leaves long, flat, linear, sheathing the lower half of the stem; scape smooth, shining, terminated by a membranous spathe enclosing a mass of flowers; flowers small white.

Garlic is stimulant, carminative, stomachic, alterative and tonic. It is not much used by regular practitioners but is largely used as a condiment. This plant is eaten in a fresh state with ghee and other ingredients by the Mohomedans of the Kathiawar and Guzerat districts, in the cold season with the idea of warding off rheumatic and neuralgic pains. The bulbs are pounded and applied externally as a rubefacient in sciatica, paralysis, neuralgic pains &c. In pustular conjunctivitis a phlycten is touched with a pointed bulb. The juice of the garlic is applied to elongated uvula, as a caustic. Garlic boiled in sesamum oil and onion forms a useful and domestic remedy for earache and atonic deafness. Surg. Major R. L. Dutt states that garlic is an excellent medicine in several forms of atonic dyspepsia. It is a good antispasmodic. In bronchial asthmatic complaints it is decidedly beneficial. Asst. Surgeon J. N. Dey states that garlic oil is stimulant and rubefacient; and is largely used in the bronchitis of children.

N. O. GRAMINEÆ.

Andropogon schænanthus, Linn. (Ver.) Rohish-truna.

The oil distilled from the leaves is of a pale yellow colour and known as *roskel*. It is carminative, stimulant and antispasmodic; not much used internally. Externally it is used as a rubefacient in neuralgia, sprains, rheumatism &c.

ALCOHOL.

Spirit distilled from the following plants is a diffusible stimulant and is largely used as a stimulating and intoxicating drink.

N. O. ANACARDIACEÆ.

Anacardium occidentale, *Linn.* (*Ver.*) *Kāju*.

The enlarged succulent red or yellow peduncle popularly known as the *Kāju* fruit is largely eaten by the people of Southern Concan and a spirit distilled from it in Goa is known as *Kájuchi-dáru* or *Kajel*. It is a diffusible stimulant and is used as an application in neuralgic pains.

N. O. SAPOTACEÆ.

Bassia latifolia, *Roxb.* (*Ver.*) *Moha*; *Mohurá*.

A tall tree, full of milk and in most part densely hairy ; leaves large elliptic or elliptic oblong, shortly acuminate flowers white, fleshy, calyx lobes 4, rusty tomentose, corolla cup-shaped, filaments none, anthers 2-30, 3-seriate, style long; berry smooth, oblong.

The flowers are considered stimulant, demulcent, tonic and nutritive. They impart their peculiar odour to the secretions of the body when eaten. This is notably marked in cattles, whose milk becomes flavoured when they are allowed to feed on the flowers of *Moha*. The spirit *Bevara* distilled from the flowers is largely consumed by the natives. It is a powerful diffusible stimulant. Rectified spirit is distilled from these flowers at Uran.

N. O. PALMEÆ.

Borassus flabelliformis, *Linn.* (*Ver.*) *Tád*.

Fan-palm is the chief liquor-bearing tree in the Thana district. The fresh juice yielded from the spathe is sweet and refreshing and is drunk before sun-rise. After sun-rise it turns milky and rapidly ferments. The fermented liquid is called *toddy*. This when distilled gives *arak*, which is drunk and is a diffusible stimulant.

Cocos nucifera, *Linn.* (*Ver.*) *Mâd*; *Narli*.

The cocoanut palm is tapped for its juice which is drunk as a fermented or an unfermented beverage. The juice if

left for a short time after removal from the tree rapidly ferments and becomes intoxicating. This is what is known as *nira* or cocoanut palm toddy and is largely consumed by poorer classes. The fermented liquid is distilled into three kinds of spirit, known respectively as *rasi*, *dharti* and *pheni*; *rasi* being the weakest and *pheni* the strongest of the three. *Pheni* is a favourite drink of the people of the Concan.

Caryota urens, Linn. (Ver.) *Bherlimâd*.

A beautiful palm with tall annulated stem; leaves bipinnate, leaflets triangular, spadices long pendulous; berry size of a nutmeg.

“An excellent spirit is obtained by the fermentation and distillation of the toddy obtained from this elegant palm. It is well adopted for pharmaceutical purposes.” (Pharm. Ind.).

Phœnix sylvestris, Roxb. (Ver.) *Khajuri*; *Sendhi*.

A tree, 10-30 feet high, stem covered with the remains of the spinous petioles; leaves pinnate, leaflets linear lanceolate, spinous pointed; fruit dark yellow, oblong.

The tree when mature is tapped and the juice collected for molasses and sugar. It is also allowed to ferment and is distilled into *arak*.

N. O. GRAMINEÆ.

Oryza sativa, Linn. (Ver.) *Bhât*; *Tândul*; *Chaval*; *Chokha*.

Rice beer or *pachwai* is prepared by half boiling the grain in water and allowing it to ferment slightly. This liquor is distilled into a spirit which is largely used by the Burmese.

Saccharum officinarum, Linn. (Ver.) *Uns*; *Sherdi*.

A tall cane-stemmed grass, 8-12 feet high, with a large feathery panicle of flowers; leaves linear 2-3 feet long and 1-2 inches broad.

Rum is obtained chiefly by the distillation of the uncrystal-

lisable portion of the expressed juice of the sugarcane and is largely drunk and used as a stimulant application by the natives.

EMETICS.

N. O. CUCURBITACEÆ.

Luffa amara, *Roxb. (Ver.) Kadudodke, Sirâle, Turai.*

The seeds are oval, flat, $\frac{1}{4}$ - $\frac{1}{2}$ inch long and $\frac{1}{6}$ - $\frac{1}{4}$ inch broad, blackish or dark brown externally.

They are used as emetic. Hon. Surgeon Moidin Sheriff states that the kernel of the seeds is the best and the only vegetable emetic which is equal to Ipecacuanha in the same quantity. In smaller doses it is expectorant and demulcent. In addition to the other properties it has control over dysentery. Dose of the kernel as an emetic 20-30 grains. When the kernel is mixed with water it forms a greenish-white emulsion, which was the only form in which he had used it. A few drops of the infusion of the dry fruit dropped in to the nostrils cause running of the nose and is a useful remedy in jaundice.

N. O. CRUCIFERÆ,

Brassica nigra, *Koch. (Ver.) Rai; Mohari.*

Mustard flour with hot water is a speedy and safe emetic. I have tried it in many cases of poisoning by opium alcohol &c.

N. O. CORNACEÆ.

Alangium Lamarckii, *Thwaites. (Ver.) Ankol; Akola.*

A small tree with grey bark and occasional thorns; leaves linear-oblong or lanceolate, slightly hairy; flowers silky white, in small fascicles, very fragrant; fruit of the size of a large plum, crimson, crowned with the persistent calyx.

The root-bark of this plant is nauseant and emetic. Hon.

Surgeon Moidin Sheriff states that the bark is a good substitute for Ipecacuanha and proves useful in all the diseases in which the latter drug is indicated ; as a diaphoretic it has been found useful in relieving cases of simple, continued and idiopathic fevers. Surg. Lieut. Col. K. R. Kirtiker classes this plant amongst the poisonous plants but does not state the dose in which it acts as a poison.

Dose—6-10 grains as diaphoretic and febrifuge and 40-50 grains as emetic.

N. O. RUBIACEÆ.

Randia dumetorum, Lamk. (Ver.) Gel; Mainphal; Mindhol.

The fruit of this small thorny tree is round of the size of a betel-nut, two-celled, many-seeded, crowned with the rim of the calyx and has a peculiar sickly odour.

Hon. Surgeon Moidin Sheriff states that the pulp of the fruit is a very valuable emetic. Its action is very safe, certain and regular and is almost equal to Ipecacuanha in many respects. The rind does not possess emetic properties.

Dose—of the powdered pulp 15-40 grains as emetic ; 5-10 grains as expectorant and diaphoretic.

N. O. OLEACEÆ.

Jasminum arborescens, Roxb. (Ver.) Kusar ; Ranjai.

A large climbing shrub ; leaves pale-green cordate, ovate lanceolate, long-petioled ; flowers white, in terminal cymes.

The juice of the leaves of this climbing shrub is used as an emetic in catarrhal bronchitis of children.

N. O. SCROPHULARINEÆ.

Herpestis monniera, H. B. & Kth. (Ver.) Bâm ; Nirbrahmi.

A creeping succulent plant, leaves obovate, entire ; flowers solitary, pale blue, calyx with 2 small bracts.

Dr. U. C. Dutt reports that a teaspoonful of the juice of the leaves is given to infants suffering from catarrh or severe bronchitis, gives relief by causing vomiting and purging.

N. O. AMARYLLIDÆ.

Crinum asiaticum, *Herb. (Ver.) Nagdone.*

Bulb large, stem short but distinct; leaves 3-4 feet long and 5-7 inches broad; flowers numerous, white, tube 3-4 inches long.

Dr. Kanny Lal Dey states that the expressed juice of the fresh bulb is a useful emetic.

N. O. AROIDEÆ.

Acorus calamus, *Linn. (Ver.) Vekhand.*

The rhizome is an efficient emetic in 30 grain doses.

EXPECTORANTS.

N. O. POLYGALEÆ.

Polygala crotalaroides, *Ham.*

A small plant 4-8 inches high, leaves 1-2 inches long, tip rounded; racemes short, dense flowered; capsule broader than long, notched, strongly ciliate.

The entire plant and the root have a reputation as remedies for cough and pulmonary catarrh. Their action is the same as that of the Senega root.

N. O. MELIACEÆ.

Naregamia alata, *W & A. (Ver.) Pitvel.*

A small plant 6-8 inches high; leaves trifoliate, petiole narrow, winged, leaflets obovate; flowers large, white, in axillary peduncles; capsule 3-angled, 3-valved.

It is the Ipecacuanha of the Portuguese. It was tried in Madras in acute dysentery and also as an emetic and expectorant, with results similar to Ipecacuanha.

N. O. SAPINDACEÆ.

Sapindus trifoliatus, Linn. (Ver.) *Ritha*; *Aritho*.

A large tree ; leaves pinnate, leaflets 3 pairs, large ovate-lanceolate ; flowers in panicles, very small, dingy white, scarcely opening, petals and stamens very woolly ; fruit 3-lobed, reddish brown, rugose.

The root of this tree is said to be an useful expectorant. Hon. Surgeon Moidin Sheriff states that the pericarp of the fruit when given internally is emetic, nauseant and expectorant and may be used successfully as a substitute for Ipecacuanha.

Dose—10-20 grains as an expectorant ; $\frac{1}{2}$ -2 drachms as emetic.

N. O. ANACARDIACEÆ.

Pistacia integerrima, Stewart. (Ver.) *Kākarsingi*.

The drug consists of gall-like excrescences formed by insects on the leaves and petioles of this tree. They are oval, flat, about $\frac{1}{2}$ - $\frac{3}{4}$ inch in length and $\frac{1}{3}$ in breadth, of a greenish brown colour.

The galls are used medicinally and are considered as expectorant and are given in 20 grain doses in cough, asthma &c. I have very often used them with benefit, in bronchitis of children, along with Piper longum, Rubia cordifolia, and Cyperus scariosus.

N. O. MYRTACEÆ.

Barringtonia acutangula, Gaert. (Ver.) *Tivar*.

The seed is usually of the size of a nutmeg, of a brownish colour and ribbed, (Ver.) *Samudraphal*. It is slightly aromatic and very bitter and is considered to be stimulant, expectorant and emetic. Rubbed with water or milk it is administered to children in bronchitis when the chest is full with phlegm and the child becomes restless not being able to throw it off. I have administered it to infants suffering from bronchitis, where Ipecacuanha failed to produce vomiting.

N. O. OLEACEÆ.

Nyctanthes arborescens, Linn. (Ver.) *Parijâtaka*; *Harshinghar*.

A large shrub, leaves opposite, ovate, rough, irregularly dentate; flowers in panicles, lobes of the corolla white, tube orange-red, fragrant; fruit size of a four anna piece, round and flat.

Rai Bahadur Kanny Lal Dey states that the leaves are antibilious and expectorant and useful in bilious fevers. The decoction of the bark was tried as an expectorant by a medical friend with success. Brigade Surgeon F. H. Thornton states that the expressed juice of the leaves acts as a cholagogue, laxative and mild bitter tonic.

N. O. ASCLEPIADEÆ.

Tylophora asthmatica, W. & A. (Ver.) *Pitmâri*.

A glabrous twining plant; leaves ovate, flowers in small umbels, rather large, long pedicelled, dull yellow or purple.

Roxburgh states that on the coast of Coromandel, the roots of this plant have been used as a substitute for Ipecacuanha. The root was however superseded by the dried leaves which were found to be more uniform and certain in their action. They are described as one of the best indigenous substitutes for Ipecacuanha. They act as emetic, diaphoretic and expectorant and are recommended in cases where Ipecacuanha is generally employed. Hon. Surgeon Moidin Sheriff attaches greater value to the root than to the leaves.

Dose.—Root 10-15 grains as diaphoretic and expectorant; 40-50 grains as emetic. Leaves 3-5 grains as diaphoretic and expectorant; 25-30 grains as emetic.

Calatropis gigantea, R. Br. (Ver.) *Ruii*; *Âkrâ*.

The flowers of this plant are regarded as expectorant and used in bronchitis, phthisis, asthma &c. They should be

ground to a paste and made into 5 grain pills, well dried and kept in a bottle well corked. One pill to be given every 4 or 6 hours according to the urgency of the symptoms. These flowers are also regarded as antispasmodic and alterative and useful in hysteria and epilepsy.

The dried root bark is considered as a substitute for Ipecacuanha and is used as such, but is found to be very inferior to that drug.

Dæmia extensa, *R. Br. (Ver.) Utran.*

A hairy twiner; leaves cordate, acute; flowers dull white, on long slender pedicels, calyx small, anthers large, pure white; follicles cylindrical, beaked.

The plant possesses emetic and expectorant properties and is extensively used by the natives in diseases of children. Dr. Oswald held that it was a fairly good expectorant in the treatment of catarrhal affection in 10 grain doses and, as such, he used it in the Pettah Hospital Mysore. Dr. Pandurang Gopal had preserved the juice of fresh leaves in glycerine and chloroform to prevent fermentation and had prescribed it in one drachm doses to children between 3—8 years, suffering from bronchitis. The first dose was generally sufficient to produce vomiting and give relief.

Dregea volubilis, *Benth. (Ver.) Hirandori.*

A stout, climbing shrub, bark light-grey; leaves ovate or cordate; flowers in drooping umbels, green, fleshy; follicles 3–5 inches long, seeds with delicate silky tufts.

The root and tender stalks are considered emetic and expectorant. They first cause nausea and then excite expectoration. The leaves are much employed as an application to boils and abscesses (Pharm. Ind.)

N. O. SOLANACEÆ.

Solanum xanthocarpus, *Schard. (Ver.) Bhuii-ringni; Kateli.*

A procumbent spreading prickly plant ; leaves ovate oblong, pinnatifid, prickly ; flowers solitary purple ; fruit yellow, of the size of a plum.

The whole plant is regarded as expectorant and is prescribed for cough, asthma, catarrh, pain in the chest, continuous fevers &c.

N. O. ACANTHACEÆ.

Adhatoda vasica, *Nees.* (*Ver.*) *Adulsâ*, *Arduso*.

A large shrub, leaves opposite, oblong, acute, smooth, strongly nerved ; flowers in spikes, white, corolla two-lipped, stamens 2, bracts smooth, ovate.

The leaves and the root of this plant have been considered to be a very efficacious remedy for all sorts of coughs, being administered along with ginger. The fresh juice of the leaves is very often administered along with honey or their decoction is made into a cough mixture. Leaves recently dried are made into cigarettes and smoked in cases of asthma. They act as an antispasmodic. I have very often administered the expressed juice of the fresh leaves both as an expectorant and emetic to children from 6 months to 3 years old suffering from bronchitis, with marked success. The late Dr. Anna Moreshwar Kunte used this drug in the form of a tincture.

Dose—of the leaves as an expectorant 10-20 grains ; decoction of the leaves 1-2 ounces ; juice of the fresh leaves as an emetic 1-4 drachms.

Barleria prionitis, *Linn.* (*Ver.*) *Pivalâ korâta*; *Kante-salio*.

A thorny shrub, leaves elliptic, narrow at both ends, bracts subulate ; flowers in spikes, buff coloured, large calyx segments entire, sharp-pointed.

The juice of the leaves is slightly bitter and is largely administered in the catarrhal affections of children accompanied with fever and much phlegm. It is generally administered in a little honey or sugared water.

N. O. LABIATÆ.

Ocimum sanctum, *Linn. (Ver.) Tulas.*

An erect herbaceous plant, softly hairy ; leaves lanceolate, flowers in verticillaster cymes, pale, purple ; achenes small, reddish brown.

The leaves possess expectorant and aromatic properties and their juice is used in the cure of catarrh and bronchitis. Assistant Surgeon S. C. Bhattacharji states that the flowers are used with honey, ginger and onion in cough as an expectorant. Assistant Surgeon, R. C. Gupta states that the juice of the fresh leaves, sweetened with honey is given with benefit to children suffering from bronchitis.

N. O. NYCTAGINEÆ.

Borhaavia diffusa, *Linn. (Ver.) Punarnava ; Sathodi.*

An herbaceous plant with numerous, slender, climbing or prostrate branches spreading on the ground ; leaves opposite, cordate, with wavy and often coloured margins ; peduncles axillary, flowers in small umbels, pink and white.

The root given as an infusion or powder is found to act as laxative, diuretic, and expectorant and in large doses emetic. Dr. P. M. Mukerji states that the root of this plant is much used in the cure of bronchitis and asthma. Dr. W. Barren states that it is expectorant, antispasmodic and tonic.

Dose.—of the infusion 1-2 ounces.

N. O. EUPHORBIACEÆ.

Acalypha indica, *Linn. (Ver.) Khokli ; Kupi.*

An annual herbaceous plant ; leaves ovate, serrate, smooth, about 2 inches long and $1\frac{1}{2}$ broad, dentate, petiole long ; spikes axillary, flowers numerous, small, white, involucre cupshaped.

The plant has a reputation as an expectorant in the Concan hence the vernacular name *khokli*. Dr. George Bidde remarks that the expressed juice of the leaves is in great repute, wherever the plant grows, as an emetic for children and is safe, certain and speedy in its action. It has very little or no tendency to act on the bowels or to depress the system like

Ipecacuanha, but decidedly increases the secretion of the bronchial tubes. Dr. Kanny Lal Dey states that the decoction of the leaves is a valuable laxative and the root bruised in water a cathartic; the expressed juice of the fresh leaves is a reliable emetic.

Dose.—of the of fresh juice of leaves, one drachm as emetic.

***Euphorbia antiquorum*, Linn. (Ver.) Nirrung; Mingut; Thór.**

A shrub with 3-4 angled, spreading branches, armed with double spines at the protuberances of the angles; leaves none or few and small; peduncles solitary or in pairs, 3-flowered.

The branches are roasted in hot ashes and the expressed watery juice is given in teaspoonful doses as an emetic to children in bronchitis when the chest is full with phlegm. The ash of the plant mixed with the juice of *Adhatoda vasica* is given as an expectorant.

N. O. LILIACEÆ.

***Urginea indica*, Kunth. (Ver.) Janglikándá.**

Bulb tunicated, white; leaves numerous, sword-shaped, smooth; scape slender and delicate; flower dirty white appearing long before the leaves.

The bulb is said to act as an expectorant and diuretic and is administered in nearly the same diseases as *Urginea scilla*.

PECTORALS.

PAPAVERACEÆ.

Opium is largely used as a pulmonary sedative by the *Vaidyas* and *Hakims* in their cough pills. Its action is very well-known to the profession.

LEGUMINOSÆ.

***Glycyrrhiza glabra*, Boiss. (Ver.) Jeshtimadh.**

The root and the underground stems occur in long cylindrical branched pieces, tough and pliable, of a greyish brown

colour and a sweet mucilaginous taste which is due to a compound *Glycyrrhizate of Ammonium*.

The root has been used in Hindu medicine from a very remote period. Dr. U. C. Dutt states that it is mentioned by *Sushruta* and described as sweet, demulcent and cooling. It is useful in cough, hoarseness and sore-throat.

Alhagi maurorum, *Desv. (Ver.) Javâsâ*.

A low shrub with green branches and strong hard thorns one to each leaf; leaves sessile, oblong or obovate, rather succulent; flowers small, purple or red, in short racemes ending in a bristly point; pod irregularly jointed.

An extract prepared by evaporating the decoction of the thorny twigs is called *yavasharkara*. It has a sweetish bitter taste and is a favourite remedy for coughs in children. It acts as a demulcent and sedative.

Acacia catechu, *Linn. (Ver.) Khair*.

Khersar a peculiar crystalline substance found in the interior of the stem is regarded as pectoral, sedative and cooling and is recommended in sorethroat, hoarseness, cough inflammation of the fauces, tongue &c.

Catechu also holds reputation of being useful in relaxation of fauces, cough &c. A small piece held in the mouth and allowed slowly to dissolve is an excellent remedy in relaxation of the uvula and the troublesome cough depending upon it.

N. O. HAMAMELIDÆ.

Liquidamber orientalis, *Millers*.

The liquid storax known as *Shilaras* is regarded as a stimulant expectorant. The late Dr. W. Dymock writes that it is prescribed as a pectoral. I have not seen it given internally, but it is used as an application to the chest in bronchitis. I have tried it externally but without much success.

ANTHELMINTICS.

N. O. CAPPARIDÆ.

Gynandropsis pentaphylla, *D.C. (Ver.) Tilwan; Hurhur.*

A small annual herb, hairy, sticky and strong smelling; leaves 5-foliate, leaflets obovate or lanceolate; flowers in racemes white or pink, stamens very long, seeds small, reniform.

Hon. Surgeon Moideen Sheriff states that the seeds are anthelmintic, prescribed for the expulsion of round worms in the form of powder with sugar. The expressed juice of the leaves is warmed and dropped in the ear for ear-ache.

Dose.—5-20 grains for children; 30-60 grains for adults; to be given morning and evening for 2 days.

N. O. SIMARUBÆ.

Balanites Roxburghii, *Planch. (Ver.) Hingar; Hingan.*

A small thorny tree with whitish bark; leaves consist of 2 leaflets, leaflet oval, entire; flowers greenish in small cymes, fruit of the size of an egg, 5-lobed, yellowish.

The bark and the leaves are used as anthelmintic especially for cattle. The unripe fruit acts as cathartic.

N. O. MELIACEÆ.

Melia azedarach, *Linn. (Ver.) Bakáyan; Limbádá.*

A tree, 40 feet high; leaves alternate, bipinnate, deciduous, leaflets 5, ovate lanceolate, oblique, serrate; flowers paniced, small, white externally, lilac at the top; fruit small, pale yellow when ripe.

Several parts of this plant are used as medicine. The root-bark is used as an anthelmintic. It has a nauseous bitter taste and yields its virtue to boiling water.

Decoctum Azedarach—4 ounces of the fresh bark, two pints of water, boiled to one pint.

Dose.—For a child a table spoonful every third hour, until it sensibly affects the bowels or stomach. (Pharm. Ind.)

N. O. ANACARDIACEÆ.

Mangifera indica, Linn. (Ver.) *Ámbá* ; *Ám*.

The kernel of the seed is regarded as anthelmintic. Dr. Kirkpatrick used very frequently the powdered mango-seed as anthelmintic in round worms, in 20-30 grain doses and found it very effectual.

N. O. LEGUMINOSÆ.

Mucuna pruriens, D. C. (Ver.) *Kuhili* ; *Kavach*.

A hairy climber ; leaves trifoliate, leaflets ovate ; flowers large, purple, papilionaceous, in drooping racemes ; pod dark brown, more or less curved like the letter S, 2-3 inches long densely clothed with brown bristly stinging hairs.

The vermifuge action of the hairs of the pod is considered to be purely mechanical. They are administered in the form of an electuary with treacle or honey for the expulsion of round and thread worms.

Butea frondosa, Roxb. (Ver.) *Palas* ; *Khákhro*.

The seeds which are thin, flat, oval or reniform, of a mahogany brown colour are mentioned as anthelmintic in *Bháva-prakásh* and *Shárangadhara*. Some medical men think them a good substitute for santonin, while others consider them less powerful. They are largely used in the treatment of round worms. The seeds should first be soaked in water and their testa removed, the kernel should then be dried and powdered.

Dose—20 grs. three times a day with honey ; once every morning for three days, followed on the fourth day by a dose of castor oil.

N. O. LYTHRACEÆ.

Punica granatum, Linn. (Ver.) *Dálimb*.

The root-bark has been used by the natives in the expulsion of tape-worms. Dr. C. Joynt states that no other remedy so

certainly cures tape-worm as the root bark of pomegranate. He orders a decoction to be prepared thus :—Two or three ounces of the rootbark are macerated in cold water for 24 hours, then strained and the strained liquid evaporated to a pint; of this one third is taken every two hours, beginning in the morning on an empty stomach. Thus given it acts quickly, safely and without sickening the stomach. The worm generally is expelled head and all, so that there is no relapse. An aperient is required to ensure expulsion.

N. O. CUCURBITACEÆ.

Cucurbita pepo, *D.C. (Ver.) Bhoplá ; Pandhrá-dudhyá.*

A large climber ; leaves palmate, rough, long petioled ; flowers yellow, bell shaped ; fruit large oblong, constricted at the neck, seeds white flat, half an inch in length, appearing like the joints of a tape-worm.

The seeds, the *kaddu dání* of the bazar, are supposed to act as anthelmintic in cases of *tænia solium*. Dose—2 ounces of the fresh decorticated seeds given in the form of an emulsion on empty stomach in the morning, followed by a dose of castor oil two hours after. Dr. Kanny Lal Dey states that the expressed oil of the seeds in doses of half an ounce repeated at an interval of two hours and followed by an aperient is said to be equally efficacious. I have found the oil a useful application for nervous headache.

N. O. COMPOSITÆ.

Artemisia maritima, *Linn. (Ver.) Kirmani-owá.*

A hoary, tomentose shrub ; stem erect or ascending much branched from the base ; leaves ovate, twice pinnatisect, segments small, linear ; flower-heads 3-8 flowered, involucre bracts linear oblong.

The flower-heads of this plant are largely used for their anthelmintic, deobstruent and stomachic properties. It renders urine deep yellow. It is one of the plants from which *santonin* is prepared.

Vernonia anthelmintica, Willd. (Ver.) *Kâlenjiri*.

An annual plant, 3-4 feet high, leaves lanceolate, coarsely serrate; flowers purplish in corymbs. Achenes blackish, one eighth of an inch long, cylindrical, ribbed, covered with whitish scattered hairs, taste nauseous and bitter.

The achenes are used by the native physicians, as anthelmintic. It is a good remedy for round worms, but never prescribed singly.

These achenes are reputed from very old times as a remedy for leucoderma and other skin diseases.

Dose—1-2 drachms of the powdered achenes made into an electuary with honey.

Sphæranthus indicus, Linn. (Ver.) *Mundi*.

A small prostrate annual, all hairy and strong smelling; stem, petioles, and peduncles irregularly winged; leaves sessile, oblong, serrate; flower-heads round, florets many, purple; bracts shorter and slender.

The small oblong achenes and the root are considered anthelmintic and prescribed in the form of a powder. The flowers are highly esteemed in the Punjab as alterative, depurative and tonic. The plant is described in the *Nighanta* as pungent, bitter and stomachic, a remedy for glandular swellings in the neck, urethral discharges and jaundice.

N. O. MYRSINÆ.

Embelia ribes, Burm. (Ver.) *Vâvading*.

The berries are used as anthelmintic. One *tolâ* of the powdered berries given at bed time in a cup full of butter-milk is a very useful remedy for tape-worm. It must be followed by a dose of castor oil in the morning. The berries are described by *Sushruta* as anthelmintic, alterative and tonic.

N. O. ARISTOLOCHIACÆ.

Aristolochia bracteata, Retz. (Ver.) *Kidamar; Gandhati*.

A smooth glaucous plant, spreading nearly flat on the ground; leaves cordate or reniform; flowers solitary, axillary, green or

claret coloured, hairy inside, lip strapshaped, pedicel with a cordate or a roundish bract ; capsule oblong ; seeds cordate.

The plant is used by the *Vaidyas* for its anthelmintic and purgative properties. A committee consisting of the late Drs. Carter, Dymock and Sakharam Arjoon reported on the drug as follows:—"The drug consists of the whole plant in fruit ; it is nauseously and persistantly bitter. It is anthelmintic, antiperiodic and emmenagogue. Used in the bowel complaint of children, when depending on worms ; in intermittent fevers and to increase uterine contractions during labour." It is a powerful insecticide.

N. O. PASSIFLOREÆ.

***Carica papaya*, Linn. (Ver.) *Popai* ; *Papayâ*.**

A tree, 10-20 feet high, stem erect, branched or not, marked with scars of fallen leaves ; leaves clustered at the top, large, 7-lobed, lobes sinuous, petiole very long, hollow ; flowers diœcious, whitish ; males in drooping panicles ; females sessile, a little below the leaves ; fruit large, oblong, cylindric, many seeded ; seeds round, blackish, wrinkled, of the size of a pea.

The milky juice of the raw fruit is supposed to possess powerful anthelmintic properties. It is said to be useful in expelling round worms but it has no effect on *tænia*. I have not seen it used by the natives on this side of India.

The fruit yields the valuable ferment *papain* which is now regarded as vegetable pepsin. It exerts a peculiarly solvent action upon the albumen, but does not form true peptones. The use of *papain* is indicated in dyspepsia caused by deficiency of the gastric juice.

Dose—1-4 grains.

N. O. EUPHORBIACÆ.

***Mallotus philippinensis*, Muell. (Ver.) *Shendri* ; *Kapilâ* ; *Kamâlâ*.**

The powdery substance obtained from the exterior of the fruit is used in medicine. It is a fine granular powder of brick-red colour ; does not dissolve in water ; boiled with alcohol a greater portion of it is dissolved forming a red solution.

The powder is used as an efficacious remedy for *tænia solium*, but it has little or no action on other intestinal worms. It acts freely on bowels causing sometimes much nausea and vomiting. The worm is generally expelled in the third or fourth stool.

Dose— $\frac{1}{2}$ -2 drachms in a little aromatic water or honey. It is also an insecticide.

***Acalypha indica*, Linn. (Ver.) Kupi, Khokali.**

The leaves are regarded as anthelmintic. The powder of the dry leaves is given to children in worms ; also a decoction prepared from the leaves with little garlic.

PURGATIVES.

N. O. BERBERIDÆÆ.

***Podophyllum emodi*, Wall.**

Rhizome perennial, stem reddish, succulent, 6-12 inches in height, bearing a pair of reflexed spotted leaves which drop like an umbrella from the end of the petiole ; flowers axillary, large, pinkish white ; fruit size of a small lemon, orange red.

Mr. David Hooper quinologist to the Government of Madras analysed the rhizome of this Himalayan plant and showed that it contained 12 per cent of the resin, whereas the American root contained only 4 per cent ; and that the podophyllin thus obtained had been found to possess the same medical properties as that used in Europe.

Podophyllin resin is a powerful biliary purgative and an active cholagogue.

Dose— $\frac{1}{8}$ -1 grain.

N. O. PAPAVERACEÆ.

***Argemone mexicana*, Linn. (Ver.) Bramhadandi ; Dârudî ; Pivala dhotra.**

A prickly herbaceous annual plant, branched ; leaves sessile, pinnatifid, sinuate, variegated with white ; flowers large,

yellow, stigma 4-7-lobed ; capsule oblong opening at the top, many seeded.

The seeds yield a yellow, clear, limpid oil which acts as an aperient in 30-40 minim doses. Hon. Surgeon Moideen Sheriff thinks that the oil is a drastic purgative, nauseant and expectorant ; while the seeds are laxative, nauseant, expectorant and demulcent. He administered the seeds in two drachm doses, made into an emulsion.

N. O. GUTTIFERÆ.

Garcinia morella, Desr. (Ver.) *Tamâl*. Gamboge=*Revâchinichâ shirâ*.

The gamboge of commerce is found in cylindric rods. The best sample is orange red, brittle, odourless and tasteless at first, then acrid.

It is a hadragogue cathartic and anthelmintic. It is prescribed in obstinate constipation and dropsy. I have administered it with manna in the form of pills, in habitual constipation. One pill at bed time is sufficient to bring on 3-4 watery evacuations.

Dose—1-3 grains.

N. O. LEGUMINOSÆ.

Cassia fistula, Linn. (Ver.) *Bahârvâ ; Garmâlo*.

The pod is cylindrical, 1-2 feet long, slightly curved, blackish on the outer surface, marked with two longitudinal streaks at the sutures ; pericarp thin and brittle, its cavity is divided into numerous cells by transverse, thin, incomplete partitions ; each cell contains a single seed surrounded by the pulp ; the pulp is of blackish brown colour, viscid, of sweetish taste and somewhat sickly odour.

The pulp is very commonly used as a mild purgative by the natives. It is often combined with tamarind and is considered a good purge for biliousness. Asst. Surgeon T. N. Ghosé states that in the flatulent colic of children it is commonly applied round the naval to produce motions.

Cassia angustifolia, Vahl. (Ver.) *Sonâmukhi*.

Dried senna leaflets are lanceolate or obovate, 1-1½ inch long, oblique at the base, of a pale green colour and very brittle.

The purgative property of senna is due to a glucoside called *cathartic acid*. The leaves are generally used in combination with other purgative drugs. A few leaflets chewed with a betel leaf at bed time, produce a free motion in the morning.

Tamarindus indica, Linn. (Ver.) *Chinch*, *Ambli*.

The pulp of the ripe fruit is valued as a laxative and refrigerent. Dr. H. De Tetham states that he found a sherbat made of tamarind pulp a good laxative for children. It sometimes causes the motions to be very offensive.

Clitoria ternata, Linn. (Ver.) *Kājli*; *Gokarni*; *Garni*.

A climber; leaves imparipinnate, leaflets 5-7, ovate; flowers solitary papilionaceous, blue or white, bracts long, pod flat straight, 3-4 inches long, many seeded.

The root and the seeds are powerful purgatives. Dr. J. H. Thornton states that the root is used as a drastic purgative and diuretic in dropsy. Hon. Surgeon Moideen Sheriff states that the fresh root bark acts as an emetic, nauseant expectorant and laxative in children. In large doses, in adults, it acts as demulcent and diuretic and relieves some of the symptoms of gonorrhœa and irritation of the bladder.

N. O. ROSACEÆ.

Rosa damascena, Mill. (Ver.) *Gulâb*.

Rose-buds are used as a laxative in native medicine. They are administered with other drugs or are cooked with rice and eaten. *Gulkand* is a confection of rose petals and sugar and is prescribed in habitual constipation.

N. O. COMBRATACEÆ

Terminalia chebula, Linn. (Ver.) *Harde*; *Hemaj*.

The unripe fruit (black myrabolans) the *balharitaki* of the natives is largely used in native medicine. It is shrivelled,

black, ovoid, $\frac{1}{3}$ - $\frac{3}{4}$ inch in length, having a shining fracture and an astringent taste.

The fruit is described as laxative, stomachic, tonic and alterative and is used in fevers, cough, asthma, urinary diseases, piles, chronic diarrhoea, costiveness, flatulence, hiccough, heart, liver and spleen diseases, skin diseases &c. It forms an ingredient of several native prescriptions. I have very often administered it with senna and found it very efficacious. It is an essential ingredient of the *triphala*.

N. O. CUCURBITACEÆ.

Citrullus colocynthis, *Schrad.* (Ver.) *Indrâyan*.

A large trailing creeper; leaves deeply lobed, scabrous beneath, tendrils short; flowers long stalked, yellow; fruit round, size of an orange, yellow, variegated longitudinally with green and white.

The pulp of the decorticated fruit freed from the seeds is used medicinally. It is regarded as a hydragogue purgative and prescribed in constipation, jaundice, hepatic enlargement, dropsy &c. It should be administered with carminatives or else it causes intense griping.

Trichosanthes palmata, *Roxb.* (Ver.) *Kaundal*.

A large climber, stem rough, deeply fissured longitudinally; tendrils trifid, leaves palmate, 5-7 lobed, scabrous on both the surfaces; flowers large, white, monœcious; fruit round, smooth, deep red, of the size of an orange.

The pulp and the rind of the fruit act as a drastic purgative when taken internally. O'Shaugnessy found it inert in three grain doses, but if taken in half a drachm or one drachm doses it produces poisonous symptoms. The dry fruit, when smoked, is said to produce beneficial effects in asthma. I have seen very beneficial effects produced by smoking it, in a case of inflammation of the fauces, wherein there was great difficulty in swallowing and breathing. One *chilum* of it caused a sudden gush of blood and the patient felt relieved.

N. O. CONVULVULACEÆ.

***Ipomæa hederacea*, Jacq. (Ver.)** *Nîlpushpi; Kâlâdând.*

There are two varieties of the seeds sold in the bazar; the bigger is brownish black, angular, arched at the back and about $\frac{1}{4}$ inch in length. The seeds of the other variety are small, black, angular, $\frac{1}{8}$ - $\frac{1}{6}$ of an inch in length, sweetish at first, then acrid.

The powder of the seeds is a reliable purgative and is a good substitute for jalap. I have been using it for the last one year and found it to act satisfactorily. It has got no repulsive smell like that of jalap and does not produce vomiting even in children. I have administered it with little ginger, in 10 grain doses to a child one year old and the largest dose I have given to an adult is one drachm but it can safely be given in still larger doses.

***Ipomæa turpethum*, Br. (Ver.)** *Nishotar; Turbud; Ted.*

Two varieties of the root of this plant are met with in the bazar, the white and the black, but the white variety is preferred in medicine. It is generally used in combination with other drugs as a purgative. Honoray Surgeon Moideen Sheriff states that the "turpeth root, notably the white variety of it, is quite equal to jalap and superior to rhubarb in its action. The best way of administering it is in simple powder, but it may also be employed in combination with cream of tartar in equal proportions with or without a few grains of ginger in each drachm of the compound powder".

Dose—of the simple powder 40-60 grains; of the compound powder 60-90 grains.

N. O. EUPHORBIACEÆ.

***Ricinus communis*, Linn. (Ver.)** *Erand.*

A shrub, 5-6 feet high; leaves palmate, peltate, 6-lobed, lobes serrate, petiole long; flowers in racemes, monœcious, stamens polyadelphous; fruit 3-celled, round, of the size of a

plum ; seeds oval, slightly compressed, about $\frac{1}{4}$ inch in length, greyish white, mottled with blackish brown spots and stripes.

The oil drawn from the seeds is largely used as a safe purgative and is a domestic remedy. The root and the leaves of this plant are also used medicinally. The root is prescribed as antirheumatic with several other drugs and is recommended in the local varieties of rheumatism such as lumbago-pleurodynia and sciatica. The leaves are smeared with oil warmed and applied to the breast to cause the swelling of mammary glands to subside and to the abdomen of children in flatulence. The expressed juice of the leaves is a useful medicine in jaundice. I have seen some cases cured with it.

Baliospermum montanum, *Mull-Arg. (Ver.) Danti.*

A shrub ; lower leaves ovate or lobed, upper ones oblong, small, hairy and coarsely serrated ; flowers in spikes, yellowish, anthers broad ; fruit green, stripped with white, 3-lobed, crowned with a 3-cleft style.

The root *Dantimul* is used as a cathartic in native medicine, causing watery evacuations and is useful in cases of dropsy. The seeds also act as a purgative and are adulterated with those of croton seeds and sold in the bazar under the name of *jamalgota*.

Dose—of the powdered root 1-10 grains.

Croton tiglium, *Linn. (Ver.) Jamalgotâ ; Jaypâl.*

The seeds are oval oblong, about a quarter of an inch long, testa blackish, mottled with white streaks ; nucleus consists of yellowish albumen, enclosing leafy cotyledons.

The seeds are used as a drastic purgative. The oil extracted from the seeds is not much used in medicine by the natives. The seeds are required to be cured either by boiling them in milk or roasting them in a pellet of cowdung, after this process the testa and the cotyledons are to be carefully removed and the albumen only to be used as medicine. One seed is supposed to be a sufficient purgative dose. It usually

causes nausea and griping. In larger doses it causes severe diarrhoea and vomiting, bringing on prostration amounting to collapse. In two such cases I could control the symptoms by giving oranges and lemons to suck and stimulants when the patient was able to retain some fluid. The oil is recommended in European medicine only. Croton oil mixed with sweet oil makes a good stimulant embrocation in bronchitis.

Euphorbia antiquorum, *Linn. (Ver.) Tindharishend; Narsij; Nivrung.*

The milky juice of this plant is highly irritable and acts as a drastic purgative even in very small quantity. It is generally administered thus—two or three drops of the fresh juice are mixed up with about half a drachm of parched grain and a little ghee and sugar. This dose is considered sufficient to produce 8 or 10 copious evacuations. (Dr. B. Evers).

Enphorbia neriifolia, *Linn. (Ver.) Mingut; Nivrung.*

An erect glabrous shrub with fleshy cylindrical stem and spirally twisted, 5-angled, jointed branches with short thorns as stipules, arising from thick tubercles at the bases of the subterminal fleshy leaves; leaves obovate, oblong, fleshy; flowers in short-stalked clusters, stamen one, geniculate; capsule smooth.

The milky juice is considered purgative and rubefacient. As a purgative it is never administered in its crude form; but such other substances as pepper, chebulic myrabolans, are steeped in it and dried and prescribed as a drastic purgative in anasarca, ascites &c. The tender portions of the branches are slightly roasted and the juice squeezed out and given with honey to produce vomiting in children suffering from bronchitis. The milky juice is applied as a rubefacient externally to glandular swellings.

Jatropha curcas, *Linn. (Ver.) Mogli erand; Ratanjot.*

The seeds and the oil extracted from them are drastic purgatives, but are very uncertain in their action. The emetic, acrid and drastic principle appears to reside chiefly in the

embryo. Many cases of poisoning by eating the whole seed are on record. The symptoms are burning of the mouth and fauces, a feeling of distension and pain in the abdomen, nausea, vomiting, violent purging, heat and congestion of the extremities, delirium and insensibility. The best antidote for this is lime juice.

N. O. LILIACEÆ.

Aloe abyssinica, *Lim.* (*Ver.*) *Korhad* ; *Kunvar*.

The inspissated juice of the leaves known as *Elia* or the aloes is largely used in native medicine as a purgative and is usually combined with astringent tonics. The leaves are used in the preparation of *Kumari asava*. The fresh juice of the leaves is given with honey to a newly born child for the first three days to allow free evacuation of the meconium.

ANTIPERIODICS.

N. O. MAGNOLIACEÆ.

Michelia champaca, *Linn.* (*Ver.*) *Pivalâ Châpâ*.

A tall straight tree ; leaves oblong, ovate, acuminate, wavy, yellowish green ; flowers yellow fragrant, sepals and petals 15-20 ; carpels many, oval, sessile, golden yellow when ripe.

In the Pharmacopœia of India it is stated that the bark has been successfully employed in the Mauritius by Dr. H. Lalliot in the treatment of low intermittent fevers. Dr. B. Evers states that the bark is a valuable tonic and febrifuge. Hon. Surgeon Moideen Sheriff states that the bark is antiperiodic and is used in the form of a decoction prepared by boiling it in two pints of water, until the liquid is reduced to one pint.

The flowers and fruits are considered bitter and cooling. Hon. Surgeon Moideen Sheriff states that he has found the flowers a cheapest stimulant, antispasmodic and carminative and a most useful drug. Before adopting this drug in his practice he made trials with it on some healthy persons

including himself and found its physiological action resemble that of Spt. ammon. aromat ; Tr. Cardamom. Co ; and such other drugs.

Dose—of the decoction 1-3 ounces; of the bark 10-30 grains.

N. O. BERBERIDÆ.

***Berberis asiatica*, D.C. (Ver.) *Dâruhald*. Extract = *rasot*.**

An erect much branched shrub ; leaves ever green or nearly so, obovate or oblong, entire or with few distinct, spinous teeth ; flowers in compressed racemes ; berries subglobose, tapering into a short style.

The root bark, as an antipyretic and antiperiodic, is considered equal to Warburg's tincture and quinine respectively and as a diaphoretic decidedly superior to James powder. It is of the greatest service in relieving pyrexia and in converting continued and remittent fevers into intermittent and also in preventing the return of paroxysms of the latter. In addition to its cheapness its advantage over Warburg's tincture and quinine is that however repeatedly it may be used, there is neither great depression on the system, nor any bad effects produced on the stomach, brain &c. A very good preparation of the root is the decoction, twelve ounces of which are equal to one bottle of Warburg's tincture. If administered during a paroxysm in 2 doses (6 ounces each) at an interval of two or three hours, it relieves the fever by producing copious perspiration. To ensure the full antiperiodic effect, the drug should be employed not only during the paroxysms but also in the same dose every fourth or fifth hour in the intermission. The cure is completed by the continued use of the drug in smaller doses for four or five days more after the fever ceases to return (Watt's. Dict. Econ. Prod.)

The wood particularly that of the stem possesses similar medicinal properties but much inferior to the root. The extract *rasot* is used as an application in chronic ophthalmia. It is also used as a febrifuge in half drachm doses.

N. O. *RUTACEÆ*.**Toddalia aculeata**, *Pers.* (*Ver.*) *Jangli Kalimirchi*.

A shrub ; leaves trifoliate, alternate, flowers in cymes, unisexual, small, white, calyx glandular fruit ; size of a cherry, pungent when ripe.

Hon. Surgeon Moideen Sheriff states that he used the root bark in his practice for 16 or 17 years and does not hesitate to say that as an antiperiodic and antipyretic it is equal if not superior to quinine and Warburg's tincture. It is highly useful in effecting a cure in all idiopathic and uncomplicated fevers whether periodical or continued. It is best used in the form of tincture and decoction and he made these preparation four times stronger than those generally in use.

N. O. *MELIACEÆ*.**Melia azadirachta**, *Linn.* (*Ver.*) *Nimb*.

The antiperiodic property of the bark of this tree has been noticed by many European writers. Dr. W. R. Cornish of Madras and others have carefully examined it and have found it effective in the treatment of intermittent fevers. Dr. K. D. Ghose states that he has separated the bitter principles from the bark and found them a very efficient febrifuge. A strong decoction of the bark used every hour in remittent fever has had the desired effect when other febrifuge remedies had failed. Civil Surgeon D. Bassu states that he has used the decoction of the bark as tonic and antiperiodic in chronic cases with good results.

Cedrela Toona, *Roxb.* (*Ver.*) *Tun* ; *Mahanimb*.

A large and handsome tree ; leaves very large, at the end of the branches, leaflets oblique, long-pointed ; flowers small, white, fragrant ; capsule oblong ; seeds winged.

Native physicians use the bark as antiperiodic in combination with the seeds of *Cæsalpinia Bonducella*. Dr. Æ. Ross

considered it a reliable antiperiodic and Dr. J. Newton states that it is a good substitute for cinchona.

N. O. LEGUMINOSÆ.

Cæsalpinia Bonducella, *Fleming.* (*Ver.*) *Ságargotá ; Káchki ; Karanju.*

A large climber, prickly; leaves pinnate, pinnæ 4-8, leaflets small, 3-8 pair, ovate; flowers racemose, yellow; pod oblong, 2 to 5 inches long; seeds roundish, lead coloured.

The seeds are tonic and antiperiodic. In an official report the Madras Committee for the proposed revision of the Indian Pharmacopœia remark that the seeds are a very useful and cheap antiperiodic, antipyretic, and tonic, and valuable in all cases of simple, continued and intermittent fevers. The seeds are powdered with black pepper and administered in 5-30 grain doses. Hon. Surgeon Moideen Sheriff states that the kernel of the seed is antiperiodic, antipyretic, tonic and antispasmodic. It has been used with good results in mild cases of intermittent and continued fevers and also in asthma and general debility.

Dose—1-2 drachms as antiperiodic; 10-30 grains as tonic.

An ointment made from the powdered seeds with castor oil is applied externally in hydrocele, inflammation of the testicles, glandular swellings &c., but I have not met with any encouraging results in my practice.

N. O. RUBIACEÆ.

Hymenodictylon excelsum, *Wall.* (*Ver.*) *Bhoresál ; Dandelu ; Kalá-kurwa.*

A large, arboraceous tree; leaves oblong or roundish; stipules cordate; floral leaves large, oblong, coloured; panicles terminal and axillary, flowers small greenish white, fragrant; capsule oblong, on thick curved pedicels.

The inner coat of the bark of this tree is used medicinally. It is bitter but that quality is not perceived immediately on chewing. It is considered as antiperiodic and febrifuge and is

especially used in cases of tertian fever. Mr. W. A. H. Naylor has obtained a crystalline principle from the bark, but no experiments have been made to determine its therapeutic virtue.

N. O. APOCYNACEÆ.

Alstonia scholaris, *R. Br.* (*Ver.*) *Sátvin*.

A bitter alkaloid *Ditain* has been separated from the bark. In a report of the Centennial Exhibition presented to the Pharmaceutical Association in 1897, it is stated that equal doses of *Ditain* and sulphate of quinine have the same medicinal effects, while the disagreeable secondary symptoms which so frequently follow the administration of large doses of quinine are absent. (*Watt's Dict. of Econ. Prod.*)

Cerbera thevetia, *Willd.* (*Ver.*) *Pivalá Kanher*.

A much branched shrub ; leaves alternate, linear, long ; flowers in cymes, yellow, bell-shaped ; fruit globose, pale green or yellow when ripe.

The bark is bitter and cathartic. Its antiperiodic properties were first noticed by M. Descourtilz and which have been confirmed by Dr. Bidie and Shortt. It was tried in the form of tincture in various types of intermittent fevers with satisfactory results.

Dose—10-15 minims of the tincture prepared by macerating one ounce of the bark in eight ounces of spirit. In larger doses, 30-60 minims, it acts as an acrid purgative and emetic and in still larger doses it is highly poisonous.

N. O. LOGANIACEÆ.

Strychnos colubrina, *Linn.* (*Ver.*) *Guagarilakri* ; *Kajarvel*.

A large climber ; leaves ovate, smooth ; flowers small, in short cymes, tubes of the corolla shorter than the lobes.

The wood is considered antiperiodic. Dr. Berdenis Van Berkelow reports favourably of its action and considers that

from its cheapness it may advantageously be used as a febrifuge in pauper practice. But the fact of its containing strychnia in considerable quantities indicates the necessity for great caution in its use. (Pharm. Ind.)

N. O. SCROPHULARINEÆ.

Picrorhiza kurroo, *Benth. (Ver.) Kadu kutki; Bálkaru.*

The rhizome occurs in short, dark yellowish brown pieces, sometimes contorted, as thick as a goose quill at the upper extremity tapering downwards, beset with rootlets below and remains of leaves above. It is described in Sanscrit medical works as bitter acrid and stomachic and in large doses a mild purgative. Hon. Surgeon Moideen Sheriff states that it is a good stomachic and useful in dyspepsia. The late Dr. W. Dymock states that it is used successfully as an antiperiodic in native practice in Bombay ; its laxative action is rather beneficial than otherwise. I have prescribed it with success in some cases of intermittent fevers where quinine had failed to produce any decided effect, but its extremely bitter taste and a very large dose are great drawbacks in its administration.

Dose—of the powdered root 1-2 drachms as antiperiodic and 10-15 grains as stomachic and tonic.

DIAPHORETICS.

N. O. VIOLACEÆ.

Viola odorata, *Linn. (Ver.) Banafshá.*

The plant although not indigenous is a favourite drug of the *hakims*, and is recommended in innumerable diseases, especially where cooling treatment is thought advisable. Hon. Surgeon Moideen Sheriff considers the plant diaphoretic and antipyretic and very useful in relieving febrile symptoms and excitement. Asst. Surgeon S. C. Bhattacharji states that a sherbat made of *banafsha* has been found to be useful in fevers as cooling and diaphoretic. Dr. C. M. Russel states that an infusion of two

drachms of the dried plant to one pint of water forms an excellent and certain diaphoretic. The flowers are also diuretic and laxative. The *Banafsha* sold by the Bombay druggist is doubtful in its action.

N. O. BIGNONIACEÆ.

Oroxylum indicum, *Vent. (Ver.) Tetu ; Arlû ; Jagdalâ.*

A glabrous tree ; leaves very large, pinnæ 3 pair, leaflets smooth, ovate, acute, petioled ; flowers in large panicles, dark coloured, fleshy ; pod flat 2-3 feet long and 4-6 inches broad ; seeds flat winged.

The root-bark of this tree is a good diaphoretic when administered in the shape of powder or infusion. It is especially recommended in rheumatic fever as it brings on copious perspiration and relieves the pain in the joints. It is also regarded as astringent and tonic. Dr. B. Evers gave the drug a trial in 28 cases and in all, he states, the result had been satisfactory. He found it a powerful diaphoretic and slightly anodyne. Dr. Kanny Lal Dey states that the root-bark is regarded as astringent and tonic, useful in diarrhœa and dysentery.

Infusum Oroxylum—Root-bark 1 ounce, water 10 ounces.

Dose—2 ozs, three times a day.

N. O. LABIATÆ.

Leucas cephalotes, *Spreng. (Ver.) Tumbâ ; Kûbo.*

A tall herb, stem grooved, hairy ; leaves ovate or lanceolate, serrate ; flowers many, in large round whorls ; bracts oval lanceolate surrounding the whorl.

The plant is regarded as a diaphoretic and mild stimulant and is recommended in fever and cough. It is also used for a vapour bath. The expressed juice of the leaves with borax and honey is given for coughs and catarrhal affections in children.

Anisomeles malabarica, *R. Br. (Ver.) Gojibha.*

A shrub, 2-5 feet high, branches tomentose ; leaves oblong lanceolate, acute, crenate at the upper half ; bracts and flora

leaves subulate ; flowers in verticillaster cymes, lilac or pale purple, anthers deep purple.

Dr. Ross states that an infusion of the leaves is a powerful diaphoretic and very useful in low continued fevers of the natives. An oil obtained by distillation of the leaves is stated to prove an effectual external application in rheumatism. (Pharm. Ind.) Dr. John North states that a handful of the leaves is used in Mysore with a vapour bath when profuse diaphoresis is required.

Dose—of the infusion 1-2 ozs as diaphoretic.

Ocimum sanctum, *Linn.* (*Ver.*) *Tulas*.

The decoction of the root is given as a diaphoretic in malarial fevers. The leaves are also diaphoretic. When plague was raging in Bombay in the months of January and February of 1897 and 98 I have seen some people drink decoction of the plant at bed time. It brought on copious perspiration.

N. O. CONIFERÆ.

Cedrus Deodara, *Loud.* (*Ver.*) *Devadâr*.

The wood of this tree is employed as diaphoretic, diuretic and carminative and is useful in fever, flatulence, dropsy &c. When fever is accompanied with constipation for a long time *Devadâr* is prescribed with other diaphoretics.

N. O. CYPERACEÆ.

Cyperus scariosus, *R. Br.* (*Ver.*) *Nagarmothâ*.

The rhizome of this slender grass is somewhat fragrant when bruised and is regarded as diaphoretic, diuretic and stomachic. It is an ingredient of several native prescriptions for fever and is especially recommended for continuous fevers. It causes perspiration, checks vomiting and reduces temperature. It also increases the secretion of urine and is thus useful in relieving congestion of the kidneys in fevers. I have used it in combination with expectorants in bronchial catarrh of children.

N. O. GRAMINEÆ.

Andropogon citratus, D.C. (Ver.) *Olâ châh*; *Lili châh*.

Root perennial ; culm 5-7 feet ; leaves many, linear, near the root, palegreen, 2-3 feet long ; panicles somewhat turned on one side, spikelets in pairs ; rachis articulated, hairy ; flowers in pairs, one hermaphrodite and sessile, the other male and pedicelled.

The infusion of the leaves is a household remedy in cases of mild fevers and catarrh. It acts as a diaphoretic, antispasmodic and carminative. The leaves are also used for a vapour bath. The oil is useful in flatulence and other spasmodic affections of bowels. It is also used as an external application in rheumatism and other painful affections. "In cholera it proves serviceable not only by allaying and arresting the vomiting but by aiding the process of reaction." (Pharm. Ind.).

Dose—3-6 drops of the oil on sugar or in emulsion.

DIURETICS.

N. O. CRUCIFERÆ.

Raphanus sativus, Linn. (Ver.) *Mulâ*.

The radish is a stimulant diuretic and antilithic. Eaten before meals it improves appetite and increases digestive power. Hon. Surgeon Moideen Sheriff states that the juice of the radish is useful in dysuria, strangury and in some cases of calculus of the bladder. Dr. T. N. Ghose states that the root is a reputed medicine for piles and gastrodynic pain. The seeds are also useful in some cases of dysuria and strangury.

Dose—Juice of the leaves 1-3 ozs., repeated frequently.

N. O. PORTULACÆÆ.

Portulaca oleracea Linn. (Ver.) *Mothighol* ; *Kurfa* ; *Lonia*.

A small prostrate annual herb, smooth and fleshy ; leaves alternate, obovate, flat, sessile ; flowers sessile, yellow.

The leaves are considered diuretic and are recommended in dysuria. Hon. Surgeon Moideen Sheriff states that the leaves and the seeds are useful in some cases of strangury, dysuria, irritation of the bladder, hæmaturia and gonorrhœa. I have used the plant as a vegetable and consider it to possess alterative, antiscorbutic and refrigerent properties.

N. O. ZYGOPYLLÆ.

Tribulus terrestris, *Linn*, (*Ver.*) *Gokhru*; *Sarâte*.

A low trailing annual plant, all grey and hairy; leaves paripinnate, stipulate, leaflets 5-6 pairs, oblong, oblique; flowers solitary, axillary, yellow; fruit small, irregularly lobed and angled with several sharp prickles.

The dried fruit has been used medicinally as demulcent and diuretic and is recommended in painful micturition, urinary disorders, gravel, spermatorrhœa &c. Hon. Surgeon Moideen Sheriff describes the fruit and the leaves as demulcent and diuretic and useful in cases of strangury, gleet and chronic cystitis. Dr. F. F. Perry states that an infusion made from the fruit has been found very useful as a diuretic in cases of gout, kidney diseases and gravel.

N. O. CELASTRINEÆ.

Celastrus paniculata, *Willd.* (*Ver.*) *Malkangni*; *Pigvi*.

A large straggling shrub, smooth, branches warty; leaves broad ovate, slightly serrate; flowers greenish yellow, in long compound racemes; capsule 3-celled; seeds red.

An oil obtained from the seeds by destructive distillation is used medicinally as an application in rheumatism and paralysis. It is black and thick with a strong and peculiar aromatic odour. It is quite different from the oil extracted from the same seeds by compression. This *Black-oil* when administered in 10-20 drop doses thrice a day acted as a powerful diaphoretic. It is very efficacious in *Beri-beri*. Hon. Surgeon Moideen Sheriff states that the first good effect

of the oil in *Beri-beri* is to increase the quantity of urine and with it the dropsical effusion begins to disappear. Dr. Lionel Beach states that he had seen two or three cases of *Beri-beri* cured by this treatment and had given it with a fair amount of success in dropsy from anæmia. Dr. E. W. Levinge states that it is stimulant and diuretic and is used in dropsical affections with invaluable results.

Dose—10 drops, two or three times a day on a betel leaf.

N. O. MORINGEÆ.

Moringa pterygosperma, Gært. (*Ver.*) *Shevga*; *Shegat*; *Shajna*.

A small tree about 20 feet high, trunk almost straight, bark grey, wood corky; soft, spongy, very brittle; leaves twice or thrice pinnate, pinnæ 3-6; leaflets 6-9 pair, entire, ovate or obovate, blunt; flowers numerous, in paniced racemes, white or streaked with red; capsule 9-18 inches long with 9 longitudinal ribs; seeds trigonous, winged.

Ancient Hindu writers describe the root as pungent, stimulant and diuretic when given internally and rube-facient when applied externally. Dr. F. H. Thornton states that an infusion of the fresh root is used as a stimulant and diuretic in dropsical affections and as a gargle in hoarseness and relaxed sore-throat.

I have found the root-bark useful in cases of Jaundice. It increases the flow of bile and also acts as a diuretic. I administered it in the form of a tincture prepared with one pound of the fresh root-bark, macerated for seven days with one pint of rectified spirit and then pressed and filtered.

Dose—1-2 drachms three times a day.

The gum rubbed into a paste and applied as a plaster disperses glandular swellings, boils &c.

N. O. CUCURBITACEÆ.

Cucumis melo, *Linn. (Ver.) Chibud ; Kharbuḡ.*

A trailing annual, stem scabrous, leaves 5-angled or lobed, rough on both surfaces ; flowers monœcious, yellow ; fruit ovate oblong, large, smooth or ribbed.

The seeds are edible, nutritive and diuretic, and are given in painful micturition and suppression of urine. Dr. S. M. Shircore states that not only the seeds but the pulp of the fruit is a powerful diuretic.

Cucumis sativus, *Linn. (Ver.) Kākdi ; Tavasi.*

A climbing or trailing annual ; leaves 5-angled or lobed, hairy, dentate ; flowers monœcious, yellow ; ovary muricate with short prickles ; fruit elongate, $\frac{1}{2}$ -2 feet long.

The seeds are used as diuretic and are usually prescribed with the seeds of *Cucumis melo* in scalding urine, dysuria &c.

Dose—30 grains or more.

N. O. SOLANACEÆ.

Solanum Xanthocarpus, *Schrad. (Ver.) Bhuii-ringni.*

The plant is a strong diuretic and useful in both active and passive dropsies. It can be administered with mineral diuretics. Dr. J. T. Muller states that it promotes the secretion of urine and therefore may be useful in cases of dropsy.

N. O. ACANTHACEÆ.

Hygrophila spinosa, *T. Anders. (Ver.) Kolsunda ;*
Seeds—*talmakânâ.*

A small spinous plant ; leaves lanceolate, whorled ; flowers sessile, axillary, blue, surrounded by rigid spines, calyx segments and bracts lanceolate.

The whole plant has been considered by old Sanscrit writers as cooling and diuretic and is prescribed in hepatic obstruction, dropsy, rheumatism and diseases of the genito-urinary

tract &c. Dr. F. Thomson states that the leaves are boiled over night and taken next morning in cases of dropsy. It is a good diuretic.

Decoctum Hygophila.—Fresh root one ounce, water ten ounces, boiled for 15 minutes in a covered vessel and strained.

Dose.—1-2 ounces.

N. O. NYCTAGINÆÆ.

Boerhaavia diffusa, Linn. (*Ver.*) *Punarnavā* ; *Sāthodi*.

The decoction of the root acts as a diuretic and laxative. Dr. Udechandra Dutt states that the decoction of *Punarnavā* root is recommended to be given with chiretta and ginger powder in anasarca. Dr. B. Gupta states that the root is a good medicine in dropsy and asthma. I have very often administered its decoction in anasarca and ascites with benefit.

N. O. AMARANTACEÆ.

Achyranthes aspera, Linn. (*Ver.*) *Aghâdâ* ; *Chirchirâ*.

The whole plant is diuretic and is found efficacious in the treatment of dropsy. It increases the secretion of the kidneys. Asst. Surgeon S. C. Bhattacharji states that the decoction of the whole plant is a useful diuretic in dropsical affections.

Decoctum Achyranthes—The fresh plant with the root and leaves 2 ozs., water 30 ozs., boil down to one pint and strain.

Dose.—2-3 ozs. as diuretic.

N. O. LAURINÆÆ.

Litsæa Stocksii, Hook. (*Ver.*) *Pisâ*.

A small tree ; young leaves tomentose, bluish grey ; old ones dark green, lanceolate ; acuminate, about six together at the end of a branch ; flowers in short racemes, all tawny and silky with reddish brown hairs, bracts large, obovate, caducous ; fruit oval, like a red plum in a green cup.

The infusion of the leaves is considered to be a powerful

diuretic and is recommended in chronic inflammation of the uterus, bladder and urethra. I have found it to act as a demulcent and diuretic and useful in cases of spermatorrhœa and irritability of the urethra due to chronic gonorrhœa. It is said to be very useful in diabetes. I have seen some persons chew fresh leaves or take their infusion and in many cases relief is obtained, although temporary.

N. O. EUPHORBIACEÆ.

Phyllanthus Niruri, *Linn. (Ver.) Bhuii-anvli.*

A small herbaceous plant, much branched ; leaves small, elliptic, stipulate ; flowers very small, solitary, axillary, male and female flowers in separate axils ; perianth persistent, of six broad and blunt lobes ; capsule globose, of several shallow lobes, very small.

The whole plant is considered diuretic and cooling and is prescribed by *vaidyas* in dropsy, gonorrhœa and other genito-urinary affections. Dr. W. D. Stewart states that the leaves bruised with milk are given in urinary and dropsical disorders. Dr. Kanny Lal Dey states that it is administered in jaundice in doses of a tea-spoonful of the dried powdered plant.

N. O. LILIACEÆ.

Urginea indica, *Kunth. (Ver.) Jangli kândâ.*

The bulb is a good substitute for officinal squill. Hon. Surgeon Moideen Sheriff states that the bulb when young and small not exceeding a lime in size acts as a diuretic in 10-20 grain doses, even more powerfully than the officinal squill, but as it grows large it becomes useless, the outer coats are always inert.

N. O. PALMEÆ.

Borassus flabelliformis, *Linn. (Ver.) Tâd.*

Drs. F. H. Thornton and J. Anderson state that the fresh milky juice obtained from the spadix is diuretic and is useful

in cases of dropsy and gonorrhœa. Many natives suffering from gonorrhœa drink toddy every morning.

N. O. GRAMINEÆ.

Cynodon dactylon, *Pers.* (*Ver.*) *Durva* ; *Harli*.

A prostrate, creeping herb, rooting to a great extent ; leaves linear, distichous ; flowering branches shortly ascending ; spikes 2-5, at the end of a long, slender, purplish peduncle.

Dr. F. H. Thornton states that the expressed juice of the leaves is diuretic and useful in dropsy. A decoction of the root is also diuretic and is useful in irritation of the bladder, vesical calculus, anasarca &c.

ANTISCORBUTICS.

N. O. CRUCIFERÆ.

Raphanus sativus, *Linn.* (*Ver.*) *Mûlâ*.

I have found the leaves act as antiscorbutic. In one case a lady who used to bleed profusely from the gums and was treated for a long time without benefit was cured by the administration of about an ounce of the expressed juice of the leaves of radish twice a day.

N. O. GUTTIFERÆ.

Garcinia indica, *Chois.* (*Ver.*) *Kokam* ; *Ratambi*.

A slender tree with drooping branches ; leaves ovate, entire, dark-green, almost veinless ; flowers fleshy, sepals in two unequal pairs, petals 4 ; fruit round, purple, smooth, size of an apple.

The dried fruit is cut into slices and mixed with some salt and pressed for a few days and then employed as a condiment in curries by the natives. It is acid and slightly astringent and is used for the preparation of acidulous drinks. Brigade Surgeon Lieut. Col. Jayakar states that the fruit is made into

a sherbat and used as a cooling drink in fevers ; it also acts as an antiscorbutic. I have found the solution of the dried fruit useful in urticaria. It is given as a drink and rubbed all over the body.

The oil obtained from the seeds is used as an external application for chapped hands and abrasions. It is also rubbed to the hands and soles of the feet to allay burning sensation felt in those parts. It is demulcent and emolient.

N. O. MALVACEÆ.

Hibiscus subdariffa *W. and A. (Ver.) Lal-ambádi.*

The fruit is a valuable antiscorbutic. Jellies, tarts &c. are made of the calyx and capsules of the plant. The seeds are also antiscorbutic and demulcent and are useful in some mild forms of dyspepsia and debility. Dr. R. L. Dutt states that the fruit is a good antiscorbutic.

N. O. GERANIACEÆ.

Averrhoa carambola, *Linn. (Ver.) Karmal ; Khamrak.*

A small tree ; leaves pinnate, leaflets ovate acuminate, sensitive ; flowers small ; fruit oblong, acute angled, deep yellow when ripe, 2-3 inches long.

The fruit possesses antiscorbutic properties. The unripe fruit is very sour, while the ripe one has a pleasant, acid, sweetish taste. Dr. Aitchinson states that the fruit is an excellent antiscorbutic.

Oxalis corniculata, *Linn. (Ver.) Ambuti.*

A small weed ; leaves trifoliate, leaflets obcordate ; flowers yellow, more or less umbellate, calyx persistent ; capsule erect angular, hairy.

The leaves are regarded as cooling, refrigerent and antiscorbutic. They contain a small proportion of oxalic acid. The preparations of the leaves are recommended in fevers, dysen

tery and scurvy. Dr. A. C. Mukerji states that the juice of the leaves is used as antiscorbutic.

N. O. RUTACEÆ.

Feronia elephantum, *Corr. (Ver.) Kavith.*

The fruit is aromatic and antiscorbutic. The pulp is eaten with sugar and is said to be useful in affections of the gums and throat. The raw pulp is made into a *chatni*. The leaves are aromatic and carminative. I have found them act as antilithontriptic, and useful in cases of gravel.

Citrus limonum, *Linn. (Ver.) Mothen limbu; Jambirā*

The juice of the ripe fruit contains citric acid in the proportion of about 32 grains to each fluid ounce. It is a valuable antiscorbutic and refrigerent. In scurvy it is one of the best remedies both as a prophylactic and curative. It is used in the preparations of cooling and effervescing drinks.

N. O. ANACARDIACEÆ.

Mangifera indica, *Linn. (Ver.) Ambā.*

The unripe fruit contains beside cellulose and insoluble matters, potash, tartaric acid, citric acid and mallic acid.

The *ambsole* or *ambosi*, the unripe fruit cut into pieces and dried is largely used as an article of diet and is regarded as a useful antiscorbutic. Asst. Surgeon N. R. Bonerji states that the unripe fruit roasted, dissolved in water and made into a sherbat with sugar is freely taken by the natives to prevent sunstroke; the pulp is also rubbed over the body for the same purpose. Dr. C. Joynt states that *amchur* was the best antiscorbutic he knew of. He found it stamp out scurvy when lime juice and all other available remedies had been tried in vain. Asst. Surgeon S. C. Bhattacharji states that *amchur* and pickles prepared from the green fruit are given to prisoners in jails as antiscorbutics.

Spondias mangifera, Willd. (Ver.) Ambáddá.

A small tree ; leaves odd-pinnate ; leaflets 4-5 pair, large, oblong entire ; flowers in panicles, greenish white or yellow ; fruit oblong or ovate, yellow when ripe.

The fruit is regarded by the natives as acid and astringent and is recommended in dyspepsia. It is much used as an article of food in curries and pickles. Dr. R. L. Dutt states that *amrá* is a useful antiscorbutic. He has used it both in its raw and ripe state in curries for prisoners. The leaves and the bark are aromatic and astringent and are used in dysentery.

Anacardium occidentale. Linn. (Ver.) Káju.

The ripe enlarged peduncle which is generally considered as the fruit of the plant has a sweetish acid taste and is eaten as a remedy for scurvy.

N. O. LEGUMINOSÆ.**Tamrindus indicus, Linn. (Ver.) Chinch.**

The pulp of the fruit contains bitartrate of potash, tartaric acid and citric acid. It is a useful antiscorbutic in place of lime juice. Dr. W. R. Cornish states that as an antiscorbutic tamarind is a most useful adjunct to the dietary of the grain feeding people. The pulp is largely eaten by the natives in their *curry* and *chatnies*.

N. O. BROMELIACEÆ.**Ananas sativa, Linn. (Ver.) Anânas.**

The ripe fruit has a sweetish acid taste and is antiscorbutic. The unripe fruit and the fresh juice of the leaves also possess antiscorbutic properties.

DEMULCENTS.

N. O. CRUCIFERÆ.

Lepidium sativum, *Linn.* (*Ver.*) *Halim* ; *Asâliyo*.

A small annual herb ; leaves oblong, multifid ; seeds very small, oblong, reddish-brown.

The seeds are mucilaginous, and are used as demulcent, alterative and tonic. Hon. Surgeon Moideen Sheriff states that the best medicinal property of this drug is its usefulness in dysentery and dysenteric diarrhœa. The coarse powder and the thick gummy mucilage of the seeds appear well-suited to allay the irritation of the mucons coat of the intestines. A *congee* of the seeds is recommended to be given in the cold season for neuralgic and rheumatic pain in the limbs, loins &c.

Dose—1-2 drachms of the seeds.

N. O. VIOLACEÆ.

Ionidium suffruticosum, *Ging.* (*Ver.*) *Ratanpurus*.

A small plant, six to twelve inches high, spreading or erect ; leaves narrow, stipulate ; flowers pink or red.

The leaves and tender stalks have been regarded as demulcent and tonic and administered in the form of a decoction or powder.

N. O. BIXINÆÆ.

Cochlospermum gossypium, *D. C.* (*Ver.*) *Ganeri*, *Gadbi* ; the gum—*Katira*.

A small tree with smooth bark ; leaves acutely lobed ; flowers large and handsome, bright yellow, at the end of the branches ; capsule oblong with 5 lobes and valves full of silky cotton.

The decoction of the bark is demulcent and tonic and is given in gonorrhœa. The gum is used as a mild demulcent by the *hakims* in their cough pills and mixtures.

N. O. MALVACEÆ.

Gossypium herbaceum, *Linn. (Ver.) Kâpsi ; Kapâs.*

The herbaceous part of the cotton plant contains much mucilage and is used as a demulcent. The juice of the leaves is considered as a good remedy in dysentery. The seeds are regarded as a nervine tonic and are given for headaches and brain affections. They are also supposed to be aphrodisiac and expectorant. The oil expressed from the seeds is used as a sedative and cooling application to the head in neuralgic and chronic headaches.

The root-bark is supposed to act as emmenagogue. Dr. Bouchella of Mississippi says that there appears to be little doubt that it acts like ergot on the uterus and is useful in dysmenorrhœa and suppression of the menses, when produced by cold. A decoction of four ounces of the root-bark in two pints of water, boiled to one pint, may be used in doses of two ounces every 20 or 30 minutes ; the fluid extract may be prescribed in doses from 30 to 60 minims.

Hibiscus esculentus, *Linn. (Ver.) Bhendâ.*

A bristly annual, 3-6 feet high ; leaves palmate, serrate, somewhat bristly ; flowers axillary, solitary, pale yellow with a dark crimson bottom ; capsule 3-8 inches, long, subcylindric, with 6-8 ribs.

The fresh immature capsules are largely used as a vegetable by the natives. They are mucilaginous, demulcent and diuretic ; useful in irritability of the bladder and kidneys and in gonorrhœa. I have very often administered a soup of the capsules in dysuria and scalding urine.

Hibiscus rosa-sinensis, *Linn. (Ver.) Jasvand ; Jasut.*

An infusion of the petals is regarded as demulcent. I have given the infusion of the white variety in dry hacking cough

with some benefit. Hon. Surgeon Moideen Sheriff reports favourably of the infusion or syrup of the petals as a demulcent and refrigerent drink in fever, ardour urinæ, strangury and irritable condition of the genito-urinary tract.

Bombax Malabarica, DC. (Ver.) Sâvar.

The bark of this tree is mucilaginous and is taken in the form of an infusion as demulcent and aphrodisiac in seminal weakness. Dr. P. N. Mukerji states that the tap root of the young plant is used in gonorrhœa and dysentery. The flowers are also considered demulcent.

N. O. TILIACEÆ.

Corchorus fascicularis, Linn. (Ver.) Bahuphali ; Hirankhuri.

A small herbaceous much branched plant ; leaves lanceolate, serrate ; peduncles opposite the leaves, 2-5 flowered ; capsule very small, almost cylindrical.

The plant is mucilaginous and is regarded as demulcent, tonic and diuretic. An infusion of the leaves is mucilaginous and is administered with sugar in gonorrhœa and scalding urine. The late Dr. Sakharam Arjoon states that the whole plant is mucilaginous and its watery extract mixed with sugar-candy is taken as a nutritive tonic. It is also regarded as an aphrodisiac and is given in cases of spermatorrhœa and seminal weakness.

Dose—1-2-drachms.

N. O. LINEÆ.

Linum usitatissimum, Linn. (Ver.) Alsi ; Javās.

The seeds of this herbaceous plant are largely used for poultices and their decoction is recommended as a demulcent drink in gonorrhœa, scalding urine, bronchial affections, diarrhœa &c.

N. O. LEGUMINOSÆ.

Acacia arabica, Willd. Gum = *Gundar* ; *Dik*.

The gum is demulcent and tonic. It is fried in ghee and is mixed with tonics and other demulcents and used as an aphrodisiac. Some *hakims* believe that the gum is very useful in diabetes mellitus as it is not converted into sugar. It is also given as a tonic after delivery.

Abrus precatorius, Linn. (Ver.) *Ganja* ; *Chanoti*.

A small climber ; leaves pinnate, leaflets many, oblong, blunt ; flowers in racemes, papilionaceous, rose or white coloured ; pod turgid, beaked, about 2 inches long ; seeds roundish or oval, red or white with a black top.

These are there varieties of Abrus, red seeded, black seeded and white seeded. The white variety is preferred for medicinal use. The leaves are demulcent and sweetish. They are chewed for the cure of hoarseness, dry cough, and ardour urinæ. The root is said to be a substitute for that of *Glycyrrhiza glabra* but is in no way equal to it. The seeds when boiled with milk have a powerful tonic action in nervous diseases. An infusion of these seeds has been used in trachoma, pannus and other opthalmic affections.

Dose—of the powdered seeds 3 grains. The uncooked seeds act as an acrid poison.

N. O. BORAGINÆ,

Cordia myxa, Linn. (Ver.) *Mothibhoker* ; *Gundâ* ; *Sapistan*.

A middle sized tree, leaves broad, ovate, rough beneath ; flowers white ; fruit size of a plum, flesh coloured.

The fruit is mucilaginous and is used as demulcent in chest and urinary diseases. It is often prescribed for coughs by the *hakims*. The bark is astringent and used for gargles.

N. O. PEDALINEÆ.

Pedaliū murex, Linn. (Ver.) *Mothā gokhru* ; *Faridh-buti*.

A low, thick-stemmed succulent herb ; almost smooth ; leaves oval, obtuse waved or slightly lobed ; flowers small solitary, yellow, with two black glands at the end of the pedicel ; fruit ovoid with four conical spurs from the base.

The leaves when agitated in water render it mucilaginous. This mucilaginous infusion is useful in ardour urinæ, strangury, spermatorrhœa, incontinence of urine, and impotence.

Dose— $\frac{1}{2}$ –2 ozs.

Sesamum indicum, D. C. (Ver.) *Til* ; *Tal*.

Sesamum seeds are considered emolient, nourishing, tonic and lactagogue. The oil expressed from the seed is largely used for human consumption. It is a good substitute for olive oil and is largely used in pharmacy. Dr. B. Evers states that he employed the mucilage obtained from the leaves by agitating them in water in 16 cases of dysentery and in all recovery followed ; 6-7 days was the necessary time for such treatment. The drug acts simply as a demulcent and had no specific influence on the disease ; further more it is necessary to combine an opiate with it to relieve the tenesmus. About 8 grains of the pulverised seed are taken internally for amenorrhœa.

N. O. ACANTHACEÆ.

Hygrophila spinosa, T. Anders. (Ver.) *Kolsundā*.

The seeds *talmakanā* are mucilaginous and are considered demulcent and aphrodisiac. They are recommended in diseases of the genito-urinary organs.

Blepharis asperrima, Nees. (Ver.) *Utangan*.

A diffuse plant, stem straw coloured, covered all over with bristly hairs ; leaves ovate ; bracts whitish with green veins ; flowers blue or white, sessile, solitary or in pairs : capsule 4-seeded.

The seeds are mucilaginous and are considered demulcent and aphrodisiac. They form an ingredient of the tonic and aphrodisiac prescriptions of the *hakims* and *vaidyas* and are administered in ardour urinæ &c.

N. O. VERBENACEÆ.

Gmelina arborea, *Linn. (Ver.) Shivan.*

A tree, hairy in most parts ; leaves long petioled, cordate, entire ; flowers in racemes, rather large, brown and yellow ; fruit oval, yellow, size of a betelnut.

The juice of the young leaves is used as demulcent in gonorrhœa, cough &c. The root is one of the ingredients of *dasha mula* and is described as a bitter tonic and stomachic and prescribed in fever, indigestion, anasarca &c.

N. O. LABIATÆ.

Ocimum basilicum, *Linn. (Ver.) Sabjâ.*

An erect herbaceous plant, leaves opposite, lanceolate ; flowers in verticillaster cymes, white or pink ; nut-lets very small, black.

The nut-lets when placed in water form a mucilaginous jelly which acts as demulcent, cooling and diuretic. They are considered useful in gonorrhœa, diarrhœa and dysentery. They are made into a sherbat and drunk by the Mohomedans on their fast days as a cooling beverage. The plant has of late been considered useful in nasal myosis by irrigating the nasal cavity with a 12 per cent. decoction.

Salvia plebia, *R. Br. (Ver.) Karmarkas.*

A stout branched hairy annual herb ; leaves oblong or ovate, wrinkled, blunt, stalked ; floral leaves very small ; flowers violet, in verticels of six.

The seeds are valued on account of their mucilaginous property. They are cooling and demulcent and are recommended in ardour urinæ and gonorrhœa. They are also considered aphrodisiac and are used in seminal weakness, debility &c.

N. O. PLANTAGINEÆ.

Plantago ovata, *Forsk. (Ver.) Isabghul.*

The seeds are small ovate-elliptical, concave, about $\frac{1}{8}$ inch long, of greyish brown colour.

The seeds are highly mucilaginous and are considered cooling and demulcent. They are chiefly used in diarrhœa and dysentery. Dr. G. Price states that the seeds are extremely useful in inflammatory affections of the mucous membrane of the alimentary canal. The seeds are powdered after removing the testa and administered with sugar in 1-2 drachm doses frequently during the day or are soaked in water and a jelly-like infusion is given as a drink. Dr. V. Richards states that the medicine did good in mucus dysentery when other remedies failed to influence the disease. I have used with benefit the decorticated seeds in $\frac{1}{2}$ -1 drachm doses in acute dysentery.

N. O. LAURINEÆ.

Litsæa Stocksii, *Hook. (Ver.) Pisâ.*

The leaves steeped in water over night form a mucilaginous jelly which is demulcent. I have very often prescribed the infusion of leaves in seminal weakness and nocturnal emissions.

Litsæa sebifera, *Pers. (Ver.) Maida-lakri.*

A small tree ; leaves from oval to lanceolate ; flowers dioecious, in small umbels ; berry round, black when ripe.

The bark is demulcent and useful in diarrhœa. Mr. Hooper has found in the bark an alkaloid having the character of *Laurotetanine*, a poisonous base peculiar to several Japanese lauraceous plants. An infusion of the bark is recommended in acute dysentery and diarrhœa. It is said to have a cooling and sedative effect on the mucous membrane of the alimentary canal. Externally it is used as an application for bruises and swellings caused by a fall or blow.

N. O. LILIACEÆ.

Asparagus adscendens, Linn. (*Ver.*) *Safed-musli*.

An erect herbaceous plant; branches diverging; thorns solitary, straight; leaves numerous, fascicled, cylindric, filiform; flowers in lateral cymes, small, pure white; berry 3-lobed, size of a pea.

The root is demulcent and tonic and used as a substitute for *salep*. The late Dr. Dymock states that he used it as an article of diet and found it far nicer than *salep*. It is considered by the natives as demulcent, diuretic and aphrodisiac and is used in combination with other drugs in cases of nervous debility, pain in the back, headache &c. It is also used as a mucilaginous drink in scalding urine, gonorrhœa &c.

Asparagus racemosus, Willd. (*Ver.*) *Shâtavri*; *Shat-muli*.

Stem woody, climbing, very much branching, branchlets rather rough, thorns turned round; leaves linear, mucronate; racemes many flowered, flowers white.

The root of the plant is used as a demulcent and diuretic especially in veterinary medicine. It is administered with the root of *Tribulus terrestris* in gonorrhœa and ardour urinæ. It is also considered useful in sterility, diseases of the uterus &c. The root, with that of *Croton oblongifolia* rubbed into a paste, is a useful application for painful bony excrescences.

N. O. AMARYLLIDÆÆ.

Curculigo orchoides, Gært. (*Ver.*) *Kali-musli*; *Musli-kand*.

A small herbaceous plant with a rosette of lanceolate, radical leaves and tuberous root; flowers on a short scape, yellow, star-like; capsule with a slender beak.

The bazar drug consists of small wrinkled black pieces, about $\frac{1}{4}$ - $\frac{1}{3}$ inch in diameter. The root is mucilaginous and is

regarded as demulcent, tonic and aphrodisiac. It is usually prescribed with aromatics and bitters.

APHRODISIACS.

N. O. LEGUMINOSÆ.

Mucuna pruriens, *D. C. (Ver.) Kuhili.*

The seeds have been described by *sushruta* as aphrodisiac and are recommended to be given with *gokhru*, sugar and milk. They act as a nervine tonic and are useful in cases of spermatorrhœa, leucorrhœa &c.

Dose—30-40 grains of the powdered seeds.

N. O. LOGANICEÆ.

Strychnos nuxvomica, *Linn. (Ver.) Kâjrâ ; Kuchlâ.*

The powder of the seeds is used in native practice as aphrodisiac and nervine tonic.

Dose—1-5 grains.

N. O. CONVOLVULACEÆ.

Ipomœa digitata, *Linn. (Ver.) Bhuiikohalâ ; Vidarikand.*

A large creeper, root tuberous ; leaves large, long petioled, 5-7 lobed; flowers large, purple, bell-shaped; capsule 4-celled.

The tuberous root is largely used in native medicine as a nervine tonic and aphrodisiac and is one of the ingredients of the prescriptions for impotence, spermatorrhœa, nervous debility &c. It is also recommended in wasting diseases in children.

Argyreia speciosa, *Sweet. (Ver.) Samudra shoka.*

The seeds are used as aphrodisiac by the *hakims*. I have administered them several times but cannot testify to their efficacy as aphrodisiac. The root is regarded as an alterative tonic, and useful in rheumatism and diseases of the nervous system.

N. O. EUPHORBIACEÆ.

Aleurites moluccana, Willd. (Ver.) *Jangli akhrot*.

A large tree with spreading branches ; leaves—lower ones 3-5 lobed, upper ones ovate cordate, young leaves pubescent ; flowers numerous in terminal panicles, white ; drupe fleshy, roundish, a little compressed, two-celled ; nuts two, one in each cell, very hard, irregularly furrowed.

The kernel of the nuts is supposed to possess aphrodisiac properties. The expressed oil of the kernel is found to be a mild and sure purgative in one to two ounce doses.

N, O. ORCHIDEÆ.

Eulophia campestris, Lind. (Ver.) *Sâlum*.

The tubers of this plant are esteemed by the natives as tonic and aphrodisiac. Dr. Calthrop states that *salep* is used extensively in cases of impotence. Dr. Forsyth states that an infusion made from powdered tuber is used in spermatorrhœa and impotence.

Orchis latifolia, Linn. (Ver.) *Salep misri* ; *Salam-misri*.

Tubers palmate ; leaves erect, linear-oblong or lanceolate ; flowers in cylindric spikes, dull purple.

The tubers of this plant and other species are largely used as tonic and aphrodisiac. They are mucilaginous and are regarded as a valuable nutritive diet and recommended in general debility, impotence, spermatorrhœa &c.

Many demulcents are used as aphrodisiacs.

EMMENAGOGUES.

N. O. MALVACEÆ.

Gossypium herbaceum, Linn. (Ver.) *Kâpsi*.

The root-bark possesses emmenagogue and parturient properties. It is used by the female negroes to produce abortion

in America. It is said to operate without pain and is safer than ergot, but too frequent doses are necessary to bring about the same result as ergot.

N. O. RUTACEÆ.

Ruta graveolens, *Linn. (Ver.) Satâp.*

A strong smelling herb ; leaves petioled, triangular, ovate, decomposed, segments various ; flowers in corymbs ; capsule obtuse, shortly pedicelled.

The expressed juice of the leaves of this plant acts emmenagogue and is recommended in dysmenorrhœa. The drug, if administered in pregnancy produces pain in the back, frequent micturation followed by uterine pains and abortion.

Peganum Harmala, *Linn. (Ver.) Harmal.*

The infusion or the tincture of the seeds is found to be a mild emmenagogue. Dr. Pandurung Gopal who tried it in several cases found the tincture produce slight intoxication like that of a small dose of *Cannabis sativa* and act as emmenagogue.

N. O. BURSERACEÆ.

Balsamodendron myrrha, *Nees. (Ver.) Hirabol.*

The gum-resin from the stem occurs in irregular masses varying in size, somewhat translucent, of reddish brown colour ; fractured surface somewhat irregular and oily ; odour agreeable and aromatic.

The gum resin is used as an emmenagogue in amenorrhœa and other atonic uterine diseases. It is also used in chronic dry cough ; as a wash for the mouth and gums and a gargle in sore-throat. Externally it is used as a stimulating and astringent application.

N. O. LEGUMINOSÆ.

Crotalaria juncea, *Linn. (Ver.) Sun ; Tâg.*

A tall branched shrub, shining and silky ; leaves linear or

oblong ; racemes, very long, flowers papilionaceous, yellow, calyx densely covered with rusty hairs ; pod sessile, oblong many seeded ; seeds small, reniform, flat, dark-brown.

The seeds act as an emmenagogue and are useful in scanty and irregular menstruation. I have given the powder of the seeds in half drachm doses in cases when the menstrual discharge was very scanty and attended with pain ; three or four doses brought on a copious flow and the patient felt relieved of the heavy sensation and pain in the uterine region.

N. O. PASSIFLOREÆ.

Carica papaya, Linn. (Ver.) *Popai*.

The fruit is considered to be very hot and is never eaten by pregnant women. Asst. Surgeon D. N. Rey states that it should not be given to pregnant women as it acts as an emmenagogue and is occasionally used to produce criminal abortion. Dr. Honston states that the unripe fruit possesses ecbolic properties and is often resorted to by the natives to induce criminal abortion. The milky juice is irritant and is applied to the *os uteri* to produce abortion. The seeds are also believed to be a powerful emmenagogue.

Dr. W. G. King states that the bruised leaves applied as a poultice, have an excellent influence in reducing elephantoid growth. He has also given internally inspissated juice in the form of pills from 2-4 grain doses for the same disease.

N. O. RUBIACEÆ.

Morinda citrifolia, Linn. (Ver.) *Nāgkudā*; *Āl*; *Bartondi*.

A shrub or small tree ; leaves ovate, shining ; flowers few together, white, long-tubed, fragrant ; fruit round, size of an apple, showing the marks of the separate berries of which it is composed.

Dr. Kanny Lal Dey states that the leaves and fruit have been regarded as deobstruent and emmenagogue.

N. O. ARISTOLOCHIACEÆ.

Aristolochia indica, *Linn. (Ver.) Sapsand, Isarmul.*

A smooth, twining plant ; leaves from linear to obovate, wavy ; flowers in racemes, erect, dark green and brown ; capsule oblong, grooved ; seeds flat, triangular, winged.

The root has a nauseous bitter taste and is valued as a powerful emmenagogue and antiarthritic. Dr. S. M. Shircore states that it is undoubtedly used to produce abortion. Dr. Kanny Lal Dey states that the fresh leaves applied to the stomach of a child remove constipation. The root is also supposed to be an antidote for snake bite.

N. O. CONIFERÆ.

Taxus baccata, *Linn. (Ver.) Barmi ; Talispatar.*

An evergreen tree ; leaves linear, obtuse or acuminate, one-nerved ; flowers dicecious.

Dr. Kanny Lal Dey states that the leaves and fruit have been reputed to have emenagogue properties. They are little used except in domestic medicine. The leaves are used by the natives for diseases of the chest, especially as an expectorant in phthisis.

N. O. GRAMINEÆ.

Bambusa aurundinacea, *Retz. (Ver.) Vansa, Bâns.*

Stem tall, green, 30-80 feet high, hollow, jointed, branches numerous, spinescent ; spines strong, curved, in pairs or in threes ; leaves sheathing, lanceolate, 2-8 inches long, terminating in a long point ; flowers in numerous half-verticelled spikes.

The decoction of the pieces of the Bamboo joints is largely used as an emmenagogue by native midwives for scanty and irregular menstruation. It is also said to cause abortion. Dr. Kanny Lal Dey states that the leaves are regarded as emmenagogue. A decoction of both the leaves and shoots is given to assist lochial discharge after childbirth.

Bamboo manna, the *vansalochan* or *tabashir* of the natives is a silicious concretion found in the interior of the hollow stem of this species of Bamboo. It is a crystalline substance of azure blue or white colour and easily friable.

It is largely used in native medicine as a cooling tonic and pectoral. I have very often used its compound *sitopaladi churna* in chronic dry coughs. It is supposed to remove thirst and is recommended in fevers and jaundice.

RUBEFACIENTS.

N. O. CRUCIFERÆ.

Brassica nigra, *Koch. (Ver.) Rai ; Mohari.*

The seeds, ground and made into a paste are applied to the skin as a rubefacient and vesicant to relieve neuralgic pain, swelling &c. Mustard plaster is almost a domestic remedy for neuralgic and rheumatic pains in the body, sickening of the stomach, delirium &c. Mustard oil is a stimulant and counter-irritant when applied externally.

N. O. CAPPARIDÆ.

Cleome viscosa, *Linn. (Ver.) Tilwan ; Kānphuti.*

A hairy and sticky weed ; leaves 3-5 foliate, leaflets ovate or obovate ; flowers small, yellow, in racemes ; siliqua long, rough.

Dr. Kanny Lal Dey states that the fresh juice of the leaves is applied externally as a rubefacient and vesicant. It is also dropped in the ear for earache.

Cratæva religiosa, *Forst. (Ver.) Vāyavarnā ; Hādvārnā.*

A tree ; leaves trifoliate, long-petioled, leaflets ovate, pale green ; flowers in racemes, white, turning to buff : fruit woody, globose.

The root bark and the leaves are applied to the skin as rubefacient and vesicant. A decoction of the root bark is said to be useful in calculous affections. The leaves are cooked and eaten

for the cure of neuralgic pains, paralysis, chronic rheumatism &c. Hon. Surgeon Moideen Sheriff states that the bark of the stem is demulcent, antipyretic and alterative tonic.

Capparis aphylla, *Roth. (Ver.) Karil.*

A thorny, much branched shrub; leaves only on young shoots, linear, subulate; flower buds whitish and mealy, flowers red and handsome.

Dr. Kanny Lal Dey states that the bruised leaves are said to be used for blistering; also used for toothache, giving relief when chewed.

N. O. ANACARDIACEÆ.

Semecarpus anacardium, *Linn. (Ver.) Bibba; Bhilāwā.*

The acrid oily juice of the pericarp is largely used by the natives as a local application for swellings, painful joints, abdominal diseases, flatulence &c. and as a counter-irritant in rheumatism and sprains but it produces intense inflammation and itching in several cases. Some people have such an idiosyncrasy that even handling of the fruit causes swelling of the whole body.

Anacardium occidentale, *Linn. (Ver.) Kāju.*

The oil obtained from the pericarp of the nut is a powerful vesicant. I have often applied it to dissolve tubercles in leprosy. It is also a useful application for warts, corns and cracked soles of the feet.

Holigarna longifolia, *Roxb. (Ver.) Rân bibbu.*

A tree; leaves long and tapering, petioles with spur-like appendages; flowers very small, in large panicles; drupe oblique, about one inch long.

The resinous secretion which exudes from the bark and the pericarp of the fruit is a powerful caustic and blisters the skin when applied. It contains *anacardic acid* and an acid oily substance identical with *cardol*.

N. O. MORINEGÆ.

Moringa pterygosperma, Gært. (Ver.) Shegat.

The bark is used as a rubefacient and counter-irritant in rheumatism, neuralgia &c.

N. O. DROSERACEÆ.

Drosera Burmanii, Willd. (Ver.) Mukh-jali.

A stemless plant, a good deal tinged with red ; leaves radical, nearly flat on the ground, wedge shaped or obovate ; flowers on a slender scape, sepals red, petals white.

The leaves bruised and applied cause blister of the surface. Put in milk they rapidly curdle it, a property attributable to the peculiar peptic ferment which the leaves are capable of secreting.

N. O. LYTHRACEÆ.

Ammania baccifera, Linn. (Ver.) Agiya ; Dádmári.

Stem a foot high, sharply angled ; leaves often alternate, lanceolate, narrow at the base, flowers minute, in dense clusters, whitish.

The fresh bruised leaves when applied to the skin cause intense burning of the part. They are used in skin diseases such as ringworm and other parasitic skin affections.

N. O. PLUMBAGINÆ.

Plumbago rosea, Linn. (Ver.) Lálchitrak.

An evergreen perenninal shrub, 2-4 feet high ; stem suffrutescent, jointed ; leaves alternate, elliptic ovate, entire ; flowers in terminal and axillary racemes, red ; fruit a membranous capsule.

The fresh root is employed locally as a vesicant. I have used it in the form of a paste in glandular tumours. It causes reddening and burning of the skin ; the cuticle is soon pulled off and the tumour is dissolved after three or four applications. Taken internally in small doses it acts as an acrid stimulant

while in larger doses it acts as an acro-narcotic poison. The root is used both internally and as a local application in plague cases by the natives but the result has not been satisfactory. Some cases are reported to have been cured but I am not aware of any case of virulent type cured by its use. Its action on the gravid uterus is that of an abortifacient. Asst. Surgeon S. C. Bhattacharji states that it is not only used to procure abortion but also as a remedial agent for post-partum and other hæmorrhages from the uterus, hence its importance in medico-legal cases.

N. O. THYMELEACEÆ.

***Lasiosiphon eriocephalus*, Dcne. (Ver.) Ramethā.**

A small tree leaves lanceolate, rather acute ; flowers in dense heads, small, yellow, surrounded by a large involucre.

The bark is a powerful vesicant. The ash of the bark if applied to the gums is said to cause inflammation of the gums and loosening of the teeth.

N. O. EUPHORBIACEÆ.

***Euphorbia antiquorum*, Linn. (Ver.) Tridhari-shend; Narsij.**

The fresh juice of the branches is irritant and is applied to painful joints. For ordinary blistering purposes the juice is mixed with bruised croton seeds, saffron and butter; this mass is enveloped in a thick fold of calico and fastened to the end of an iron hook ; the mass is then ignited and held over some vessel ; the dark liquid which oozes from it is a powerful caustic. (Dr. B. Evers).

***Croton tiglium*, Linn. (Ver.) Jamālgota.**

Croton oil when applied locally acts as a stimulant rubefacient and vesicant. The latest investigation of the vesicating constituent of croton oil has resulted in the isolation from the fatty acids of the croton resin which is said to possess extraordinary power as a vesicant.

STYPTICS.

N. O. CRASSULACEÆ.

Kalanchoe laciniata, *D.C. (Ver.) Ghâipat; Jakhmehayat.*

An erect herbaceous plant, leaves deeply divided, coarsely toothed ; flowers in panicles, pretty yellow.

The leaves of this plant and *Bryophyllum calycinum* have some reputation as an application to bruises and contusions to allay inflammation and prevent discoloration. The juice of the leaves acts as a styptic on fresh wounds.

N. O. EUPHORBIACEÆ.

Jatropha curcas, *Linn. (Ver.) Mogli erand ; Jepâl.*

The milky juice of this plant is a valuable styptic. Dr. U. C. Dutt states that the milky juice is a powerful hæmostatic. He tried it in two cases and found the bleeding at once arrested. Dr. B. Evers found it useful in a case of bleeding varicose aneurism. He reports that after trying the torniquet and digital pressure, he injected a drachm of the milky juice into the tumour by means of a hypodermic syringe ; the result was astonishing ; in twenty minutes time the pulsation became so faint that no non-professional person could have detected it ; by evening all pulsation had ceased and a good firm coagulum had been produced. No ill effects resulted from the injection of the juice. He further states that two children were brought to him for the purpose of having the fracture of the tongue snipped and in both cases after the operation he employed this juice as a styptic. The juice is said to strengthen the gums.

N. O. TYPHACEÆ.

Typha angustifolia, *Linn. (Ver.) Râmbân ; Ghobejarin.*

The male spadix is cylindric about a foot long, and barely as thick as the index finger, closely set with stamens and woolly filaments of a brown colour.

The soft woolly inflorescences of the male spadix are applied cotton-like to wounds and cut surfaces ; they act as a mechanical styptic.

N. O. GRAMINEÆ.

Cynodon dactylon, *Pers. (Ver.) Durrâ.*

The fresh juice of the leaves is used as styptic in epistaxis. Dr. J. H. Thornton states that the expressed juice of the leaves is astringent and is used as an application to fresh cuts and wounds. Dr. Dayal Chandra Shome states that he found the fresh juice to be a valuable styptic in epistaxis.

INSECTICIDES.

N. O. ANONACEÆ.

Anona squamosa, *Linn. (Ver.) Sitâphal.*

A small tree; leaves lanceolate; flowers axillary, pale green; fruit ovate, squamous.

The leaves, the unripe fruit and the seeds possess insecticide properties. A poultice of the bruised leaves applied to a foul ulcer full of maggots kills them and makes the wound look healthy.

N. O. MENISPERMACEÆ.

Anamirta cocculus, *W. & A. (Ver.) Vatoli ; Kâkphal.*

A climbing shrub with thick corky bark ; leaves cordate or ovate, petioles long ; flowers in panicles, greenish ; drupe roundish, smooth black.

The bitter fruit of this plant is used to poison fish and crows. It is never administered as medicine.

N. O. PAPAVERACEÆ.

Argemone mexicana, *Linn. (Ver.) Pivalâ-dhotra.*

The oil obtained from the seed is said to be a valuable

remedy for itch. Dr. R. Ghose states that the yellow juice of this plant and the cold drawn oil of the seed are useful in scabies.

N. O. LEGUMINOSÆ.

Acacia concinna, *D.C. (Ver.) Shikakkai.*

A large scandent shrub, prickles minute numerous, hooked ; leaves pinnate, pinnæ 12-16, leaflets 30-50 ; stipules and bracts ovate cordate ; flowers in panicles, yellow or white, fragrant ; pod strap-shaped, monoliform, 3-4 inches long, $\frac{3}{4}$ inch broad, thick, succulent, blackish red when dry.

A decoction of the pods is a domestic remedy for killing lice, promoting the growth of hair and removing dandruff from the scalp. Hon. Surgeon Moideen Sheriff states that the pods are given as an emetic in jaundice not depending upon obstruction. In large and repeated doses the pods act as emetic and purgative. A piece of the pod chewed is said to give instantaneous relief from the pain of scorpion bite.

Cassia alata, *Linn. (Ver.) Dadmardan.*

A small shrub with thick downy branches ; leaves pinnate, leaflets large, round ; flowers numerous, large, yellow ; legume ovate.

The fresh leaves bruised are useful in the cure of ring-worm. Dr. D. Bassu states that he has pretty largely used the leaves for the cure of ring-worm with success. Dr. Kanny Lal Dey states that the fresh leaves bruised and mixed with lime-juice act with decided efficacy in ringworm and similar skin diseases.

Cassia sophora, *Linn. (Ver.) Rân-tâklâ ; Kasundâ.*

A smooth shrub ; leaves pinnate, leaflets 6 to 12 pair, lanceolate ; pod swollen towards the top many seeded.

The leaves and seeds are used as a cure for ringworm. Dr. Kanny Lal Dey states that the seeds with equal parts of

sulphur rubbed into a paste with water, are applied with good effect to patches of pytyriasis and psoriasis.

Cassia tora, Linn. (Ver.) *Tāklā*; *Chakundā*.

A small shrubby plant; leaves pinnate, leaflets 3 pair, obovate; flowers yellow; pod, very long and slender, 4 sided.

The leaves are made into a paste with lemon juice and applied for the cure of ringworm and scabies.

Pongamia glabra, Vent. (Ver.) *Karanj*.

A tree; leaves pinnate, leaflets 5-7, ovate, glabrous; flowers in panicles, white or streaked with purple, papilionaceous; pod woody, oval, flat, 1-2 inches long.

The seeds yield a red brown thick oil which is useful in skin diseases such as scabies, prurigo, pytyriasis and psoriasis, I have found the mixture of *Kamala*, *camphor*, and this oil, a useful application in scabies.

Dr. B. Evers reports that he had employed the powder of the pericarp of the pod in 14 cases of whooping cough and 25 cases of chronic bronchitis with efficacy. Most of the patients were relieved within 10-12 days.

Dose.—5-10 grains for adults and 1-3 grains for children thrice daily.

N. O. ACANTHACEÆ.

Rhinacanthus communis, Nees. (Ver.) *Gajkarni*.

A shrubby plant, 3-4 feet high; leaves large, ovate, oblong; flowers white, in axillary and terminal panicles orolla tube compressed, long and slender.

The fresh root and leaves bruised and mixed with lime-juice and pepper are said to be useful in ringworm. In Europe the results obtained by its use are contradictory. It seems, however, to be universally used with good results in cases of *Tinea circinata tropica*, although its utility in

ordinary ringworm seems very doubtful. (Watts Dic. Econ. Prod.)

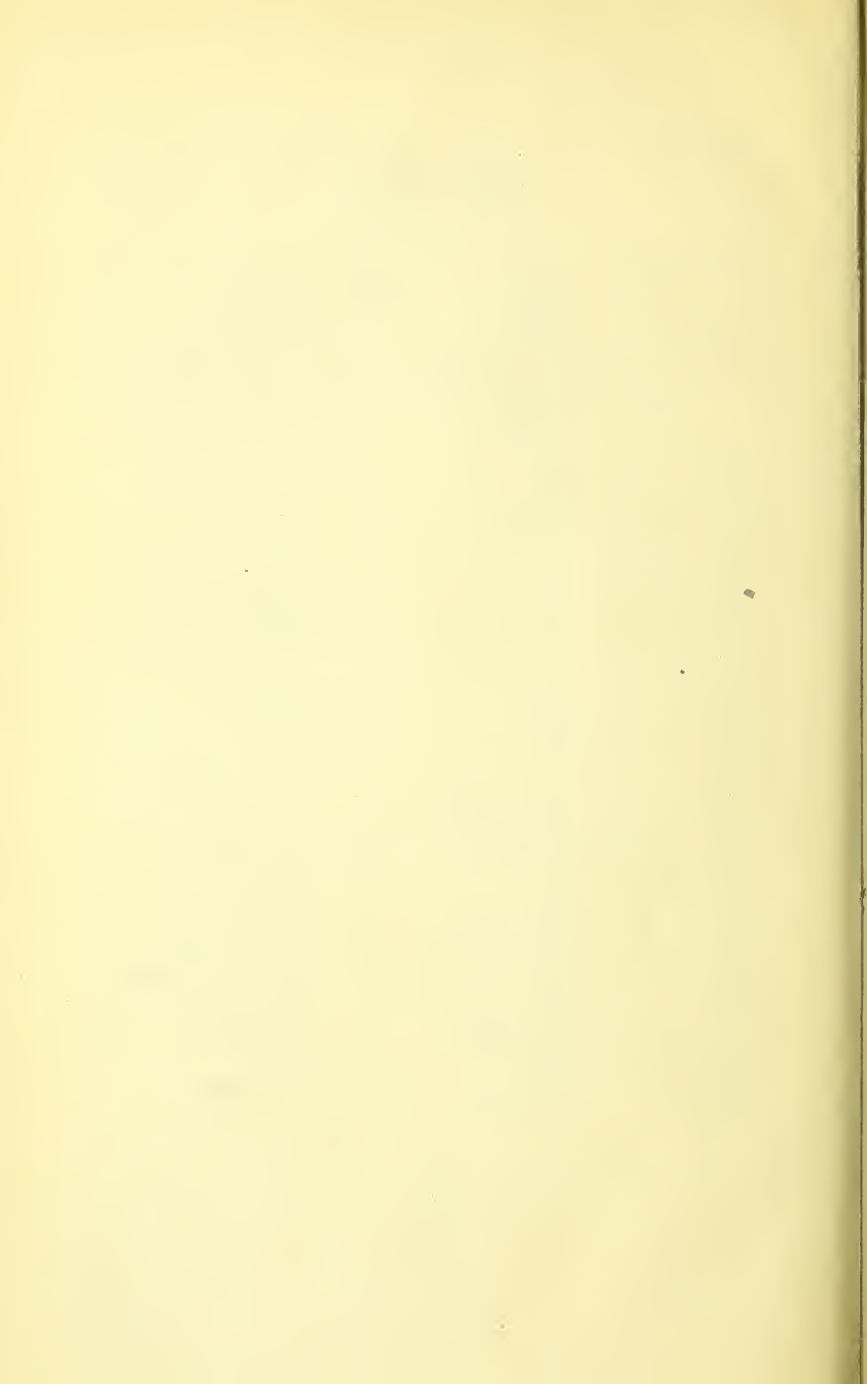
N. O. AROIDEÆ.

Acorus calamus, *Linn. (Ver.) Vekhand.*

The rhizome or its decoction is supposed to destroy fleas. Dr. G. Bidie states that it is used in Madras as a flea-powder ; it is very effective. Dr. Robinson states that it is used to keep moths from woollen goods and drive away fleas.

ERRATA.

Page.	Line.		Read.	
10	2	Pariera.		Pareira.
13	14	Lognaceæ.	"	Loganiaceæ.
14	4	Jangl.	"	Jangli.
15	10	Convalescence.	"	Convalescence.
17	26	Contain.	"	Contains.
20	24	Whirled.	"	Whorled.
31	6	The root is.	"	The root-bark is,
32	5	Bad.	"	Vad.
...	13	Diabetis.	"	Diabetes.
46	20	Form.	"	From.
48	23	Tubuerous.	"	Tuberous.
52	24	Dyspesia.	"	Dyspnœa.
53	11	Manial.	"	Maniacal.
67	9	Aphordisiac.	"	Aphrodisiac.
...	17	"	"	"
68	1	Sativa.	"	Sativum.
71	6	Sirâle.	"	Shirâle.
73	2	Is.	"	If.
76	32	Xanthocarpus.	"	Xanthocarpum.
79	6	Of the of fresh.	"	Of the fresh.
92	16	Enphorbia.	"	Euphorbia.
96	28	Arboraceous.	"	Arborescent.
99	34	Flora.	"	Floral.
104	18	Xantho carpus.	"	Xanthocarpum.
114	13	These are there.	"	There are three.
121	9	Acts emmenagogue.	"	Acts as emmenagogue.
123	17	Emenagogue.	"	Emmenagogue.
...	22	Aurundinacea.	"	Arundinacea.
126	30	Pulled.	"	Peeled.
127	11	Thymeleaceæ.	"	Thymelacæ.



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